

OVERPAYMENTS

TO IPP'S

12th July, 2019

Overpayments on Account of Inappropriate IPP Tariffs

SUMMARY OF OVERPAYMENTS

Ref. No *	Project	Capacity (MW)	Overpayment Already Made	Overpayment Yet to be Made	Total Overpayment Over Contract Period
			In Million Dollars		
A.	Coal Power Projects	2,640	477	14,013	14,500
B.	Wind Power Projects	1,351	1,092	3,776	4,868
C.	Thermal (Oil & Gas) Power Projects (2002 Policy Only)	1,850	1,272	2,487	3,759
Total		5,841	2,789	20,185	23,127

Pakistan has regionally highest power tariffs which has consequently raised cost of manufacturing. This has been one of the prime reasons for loss of competitiveness of our industry and the stagnation of our exports.

The high tariffs hurt industrial production, commercial activities and even the common man as when these tariffs are correlated to income levels of the ordinary Pakistani electricity consumers. These rates are a direct result of corruption and inefficiency which have plagued the system.

This document deals with the main causes of the exorbitant tariffs allowed to IPP's with complete disregard to the agreed rates of return as a result of corrupt practices.

The IPP's under scrutiny fall in the following categories.

1. Coal Power Projects 2640 MW's

This report only deals with the CPEC sponsored 2 x 1320 MW plants.

Section A of Report

2. Oil & Gas based Thermal Plants 1200 MW's

Only those under the 2002 policy

Section B of Report

3. Wind Power Plants 1350 MW's

Section C of report

Other IPP's categories that also require to be scrutinized and revisited are

4. Solar IPP's 4 projects 400 MW's

A Tariff of US cents 18/Kwh for the first 10 years, whereas, the internationally competitive tariffs currently are well under 4 cents and at the time of award of these projects were about 7 cents per Kwh.

Section D of report

5. Hydel IPP's Approx 3000 MW's under development (List attached)

Hydroelectric power used to be the cheapest source of electricity. It is no more as it is now costing 8 to 10 cents as opposed to 5 cents or even lower for solar and wind energy. Even hydroelectric power is not priced more than 4 cents in most jurisdictions in the world.

Rationale for scrutinizing

The bidding for Dasu, a public sector project under World Bank, auspices reveals that bids were lower by 50% or even more compared to those for similar projects.

A comparison of different projects shows that unit costs vary widely. Karot has 2.03 times the reference cost for Dasu, Kohala 3.31 times, Azad Pattan 3.97 times, Suki Kinari 2.38 times and Mahl 2.50 times.

IPPS Hydel

Sr. #	Name of Project	Capacity(MW)	Location	First 10 Year Referenc (In Rupees)	Levelized Tariff (In Rupees)	Exchange Rate (us \$)
1	Alka Power Private Limited (APPL)	1.8	RD 69, Jhang Branch Canal, Punjab	13.83	11.13	101.95
2	Blue Star Energy (Pvt.) Limited	3	Tahsil TakhtBhai District Mardan	6.85	5.82	60.75
3	Chenab Energy (pvt.) Ltd	4.8	Sahiwal Hydropower Project	7.97	6.06	84.00
4	Frontior Mega Sructure & Power (Pvt.) Ltd- Ghanool Hydropower Project	2.4	Ganhool Katha (Nullah) on Balakot- Naran Road, District Mansehra	8.56	6.49	86.00
5	Karimi energy (Pvt.) Ltd. (KEPL) - Jabri Bedar Hydropower Project	3.6	Jabri Bedar Hydropower Project	Not Decided		
6	Kandiah Hydropower (Pvt.) Ltd.	545	Kandiah River, District Kohistan, Khyber Pakhtunkhwa	Not Decided		
7	Karot Power Company (Pvt.) Ltd. (KPCL) Karot Hydropower Porject	720	Karot Hydropower Project	8.95	7.74	101.60
8	Mira Pakistan Limited - Kotli Hydropower Project	97	Kotli hydropower Project	5.01	4.30	79.00
9	Mira Power Limited - Gulpur Hydropower Project	97	Gulpur Hydropower Project	4.95	4.28	79.00
10	Olympus Energy (Pvt.) Ltd.	20	Marala Barrage, Gujrat, Punjab	14.48	11.91	100.56
11	PHYDO- Machai Hydropower Plant	2.6	Mardan, Khyber Pakhtunkhwa	5.83	5.62	86.00
12	PHYDO- Ranolia Hydropower Plant	17	Seouthwest of district Kohistan, province of Khyber Pakhtunkhwa.	4.28	4.12	85.40
13	Punjnad Hydropower (Pvt.) Ltd.	15	Punjand Barrage, District Muzzaffargarh, Punjab.	8.39	6.62	
14	punjab Developmwent Company Ltd-Chianwali Hydropower Project	5.38	Upper Chenab Canal, District Gujranwala, Punjab	11.46	11.06	102.93
15	punjab Development Company Ltd-Marala Hydropower Project	7.64	pper Chenab Canal, Marala Barrage, District Sialkot, Punjab	9.12	2.80	102.93
16	punjab Development Company Ltd-Pakpattan Hydropower Project	2.82	R.D. 114+634 of Pakpattan Canal about 14 km from Pakpattan City, Punjab	7.65	7.39	102.93
17	Rasul Hydropower (Pvt.) Ltd.	20	Rasul Barrage - Jhelum Punjab	5.95	4.71	38.31
18	Rohri Canla Hydropower (Pvt.) Ltd.	2.5-3	Rohri Canal	Not Decided		
19	Sammar Gah Hydro (Private) Ltd.	28	Summar Gah Gosak, District Dassu, Kohistan, Province Khyber Pakhtunkhwa	Not Decided		
20	Star Hydropower Ltd. Patrind Hydropower Project	150	Kunhar/ Jhelum River near Patrind Village in the state of Azad Jammu Kashmir			85.00
21	Suki Kinari Hydro power Project	870.25	Khyber Pakhtunkhwa	9.81	8.59	97.40
22	Sarhad Hydel Development Organization (SHYDO) - Malakand-III	Up to 132	Malakand-III	5.42	4.80	124.36
23	Trident Power JB (Pvt.) Limited (TPJPL)	4.6	Lower Bari Doab Canal, Okara Cantt	14.03	11.29	101.95

SECTION-A

OVERPAYMENTS TO IPP'S BASED ON COAL POWER

OVERPAYMENTS ON ACCOUNT OF COAL POWER PROJECTS

Summary

- I. Coal Companies with government connivance obtained a tariff which is more than 50% higher than the market rate leading to an annual over payment of \$ 477 million per annum or US \$ 14.5 Billion over the life of these projects.
- II. These projects will make additional profits on ghost fuel due to understated efficiency of the coal plants.
- III. That the companies running the plants are making additional profits through overpriced coal imports.
- IV. Pakistan's Balance of Payment crisis has worsened due to such faulty projects which are based on imported fuel and owing to high tariffs given in foreign currency.
- V. Resultantly our industry has lost competitiveness in the international market.
- VI. NEPRA was asked about the high tariff to which they responded with a letter from the Ministry directing them to revise/increase the tariff, letter is attached as Annex A. This is the 'smoking gun'.
- VII. Expert Opinion on the biased IPP tariffs is appended at Annex B.

The Port Qasim Power Plant

- The Port Qasim Power Plant of 1320 MW is now getting a tariff of USc. 8.3601 As per NEPRA determination.
- That the Port Qasim Power Plant was allowed to include the cost of the jetty in the upfront tariff which further enhanced the tariff.
- That the Port Qasim Power Plant is delivering 9.25 billion units of electricity per annum with a tariff of US cents 8.3601. The unjustified payment of Port Qasim Power Plant when compared to Jamshoro Power Plant is costing the country Rs. 25.30 billion or \$ 198 million or \$ 6 Billion over the life of the project.

Huaneng Shandong Ruyi Energy (Sahiwal Power Plant)

- The Huaneng Shandong Ruyi Energy (Sahiwal Power Plant) of 1320 MW is now getting a tariff of USc. 8.36 (upfront) and USc. 9.16 (Levelized) As per NEPRA determination.

- That the Huaneng Shandong Ruyi Energy (Sahiwal Power Plant) was allowed to include the additional transportation cost in the upfront tariff which further enhanced the tariff.
- That the Huaneng Shandong Ruyi Energy (Sahiwal Power Plant) is delivering 9.25 billion units of electricity per annum with a tariff of Usc 9.16 (Levelized). The unjustified payment of Sahiwal Power Plant when compared to Jamshoro Power Plant is costing the country Rs. 35.5 billion or \$ 277 million or \$ 8.3 billion over the life of the project.

International comparisons of tariffs of similar coal projects were obtained from reliable sources and are produced below:

INTERNATIONAL COMPARISON

Comparative CAPEX and COGE of various coal power Plants					
	Capacity	CAPEX	unit CAPEX	COGE.Level	Completion
	MW	MnUSD	MNUSD/MW	Usc/kWh	year
CPEC-NEPRA upfront Tariff	1320	1463	1.45	9.16/8.36	2018
Jamshoro Coal Power Plant-ADB	1320	1181	0.895	6.2361	2020
Hassayan-UAE-USC	2400			4.501	2021
Egypt-Shangai-Dongfeng	6000		0.733(EPC)	5.4	2022
Malaysia-Manjung-USC	1000	1200	1.2	5.695	2015
Malaysia-Tanjung-4	1000	100	1.1	5.695	2016
Kudgi SSTP-USC-India	2400	2300	0.9		2017
Khargon-USC-India	1300	1500	1.1		2019
Source: IEEFA, TNB Malaysia, Source Watch, NEPRA					

Comparative Indian and Bangladesh Generation tariffs As per Institute of Energy Economics May 2014 Report

Wholesale Generation prices on coal were RS 3 to 4 at an exchange rate of Rs 60 to a \$. The equivalent tariff for Pakistan works out at PAK RS 4.5 to Rs 6. This is substantially lower than the upfront tariff given by NEPRA.

India's Mundra Ultra Mega Power Project [3] with a net power generation capacity of 4,000 MW is exemplary in its efficiency. With an average thermal efficiency (gross) of 43.5%, and an annual net power generation of 29,928 GWh, the tariff has been calculated at only Indian Rupees 2.26[4] per kWh/ unit.

The Bangladesh Power Development Board (BPDB) signed three IPP contracts for coal fired power generation with Orion Group for 1,200 MW in June 2012. The average tariff for the power plant is agreed at 5.4214 US cents (Tk 3.795). In April 2014, Bangladesh Power Development Board (BPDB), on behalf of the Ministry of Power, Energy & Mineral

Resources, floated an open tender for ultra-super critical coal power plants, with a capacity 2x600-700 MW Coal Fired Ultra at Moheshkhali.

- Pakistan's Jamshoro Power Project which was tendered competitively and the resultant tariffs and cost component comparisons has been compared with these projects, are given below:

Comparative Cost of Coal Power Plants and Tariff		
	Chinese CPEC	JPCL-Tender
EPC-Mn.USD	1596.8	775
Non-EPC-Mn.USD	315.4	406
Tot. Project Cost-Mn.USD	1912.2	1181
Capacity-MW	1320	1320
EPC per MW-Mn.USD	1.21	0.578
Project Cost-Mn.USD/MW	1.45	0.895
CPP	3.5039	1.38
EPP	4.8561	4.8561
TPP	9.16/8.36*	6.2361
Capacity Factor %	85	85
Coal Price –USD/t	129.06	119.6
Exchange rate	97.1	97.1
Note: 160 million USD has been added in JPCL Tender Cost to account for existing assets.		
*Actual levelized tariff is US cents 9.16		
Source: 1) NEPRA		

- NEPRA was asked about the high tariff to which they responded with a letter from the Ministry directing them to revise/increase the tariff.
- Expert opinion about upfront tariff determination was sought from energy experts

Sahiwal coal power project (Huaneng Shandong Ruyi Energy Private Limited)

Capacity Charge = Usc 3.40

Fuel charges = USc. 6.59

$6.59/111 \times 97 = \text{Usc } 5.76$

$5.76 + 3.40 = \text{USc } 9.16$

USc. 9.16 is levelized tariff for Sahiwal coal power project whereas upfront tariff was Usc. 8.36¹

Project capacity = 1320 MW

Annual unit supply from Sahiwal coal power project = $1320 \times 24 \times 365 \times 0.80 = 9.25$ billion unit

Jamshoro power plant tariff = Usc. 6.23

Difference between Sahiwal plant and Jamshoro power project is USc 2.93

Rs. = 128

$\text{Usc. } 2.93 \times 128 = \text{Rs } 3.84$

$9.25 \text{ billion Unit} \times \text{Rs. } 3.84 = \text{Rs } 35.5 \text{ billion or } \$ 277 \text{ million}$

Unjustified payments from Sahiwal coal power project (Huaneng Shandong Ruyi Energy Private Limited) worth \$ 277 million.

Port Qasim Electric Power Company (Private) Limited (PQEPCPL)

Tariff = Usc. 8.3601

Project capacity = 1320 MW

Annual unit supply from Port Qasim Coal Power Project = $1320 \times 24 \times 365 \times 0.80 = 9.25$ billion unit

Port Qasim power plant tariff = Usc. 6.23

Difference between Port Qasim Power Plant and Jamshoro power project is USc 2.1301

Rs. = 128

¹ Next 10 years reference tariff is more than 11 cents per unit

Usc. 2.1301* 128 = Rs 2.73

9.25 billion Unit * Rs. 2.73 = Rs 25.30 billion or \$ 198 million

Unjustified payments from Port Qasim coal power project worth \$ 198 million.

Total over and unjustified payments for both projects are \$ 475 million PER ANNUM and Us \$ 14.5 Billion over the contract period

ANNEX-A



Secretary
Tel: 3200033

No. SECY (W&P) / MISC-2014
GOVERNMENT OF PAKISTAN
MINISTRY OF WATER AND POWER

Islamabad, the 11 February 2014.

Mr. Khawaja Muhammad Naeem
Vice Chairman
National Electric Power Regulatory Authority
Islamabad

Subject: RECONSIDERATION REQUEST/ MOTION FOR REVIEW, UNDER SECTION 31(4) OF THE NEPRA ACT, 1997 READ WITH RULE 16(12) OF NEPRA (TARIFF STANDARDS & PROCEDURE) RULES, 1998 AND REGULATION 3(2) OF NEPRA (REVIEW PROCEDURE) REGULATIONS 2009, OF THE UPFRONT TARIFFS DETERMINED BY NEPRA ON 6th JUNE 2013 FOR COAL BASED POWER GENERATION

This has reference to NEPRA Order No. NEPRA/TRF-100/UTC/5444-5446 dated 6th June 2013 vide which NEPRA announced Upfront Tariff for coal based projects.

2. Your attention is invited to Section 31(4) of the Regulation of Generation Transmission and Distribution Act 1997 (the NEPRA Act) which provides as follows:

"Notification of the Authority's approved tariff, rates, charges, and other terms and conditions for the supply of electric power services by generation, transmission and distribution companies shall be made, in the official Gazette, by the Federal Government upon intimation by the Authority:

Provided that the Federal Government may, as soon as may be, but not later than fifteen days of receipt of the Authority's intimation, require the Authority to reconsider its determination of such tariff, rates, charges and other terms and conditions. Whereupon the Authority shall, within fifteen days, determine these anew after reconsideration and intimate the same to the Federal Government."

3 The Authority's attention is also drawn to Regulation 3(2) of the NEPRA (Review Procedure) Regulations, 2009 which states:

"Any party aggrieved from any order of the Authority and who, from the discovery of new and important matter of evidence or on account of some mistake or error apparent on the face of

record or from any other sufficient reason, may file a motion seeking review of such order'.

4. Initially, the MoWP expected that the announcement of upfront tariff on coal would attract the private sector investment in Coal based Power Generation Plants in Pakistan. Nonetheless the investors based on their market due diligence gave feedback to the MoWP/Federal Government that IPP projects opting for the above determined Upfront Tariffs would not be commercially viable. Interactions with different investors have shown that following items need to be rationalized for viable investment in coal based Power Generation Projects.

- i). Reconsideration of Per Megawatt Capital Cost of the Project
- ii). Realistic Readjustment of Net Thermal Efficiency
- iii). Reconsideration of Fixed & Variable Operation and Maintenance (O&M) Cost
- iv). Change in the Plant Factor of coal based power generation projects

5. The outcome of the feedback given by private sector investors suggests that capital costs as assumed by NEPRA for 660MW unit are on the lower side. While comparable gross capital cost for plants manufactured in Europe and America would range between US\$ 2-3 million per megawatt, even that based on the Chinese manufactured power plants would not cost lower than US\$ 1.45-1.70 million per megawatt.

6. After interactions with investors, the Ministry of Water and Power has concluded that for Super Critical Coal Power Plants net efficiency of even 42% or above is technically achievable, but the capital costs for such plants would be prohibitive, even higher than the figures mentioned above. It can be established that net thermal efficiency in the range of 39% may be a pragmatic trade-off in view of consumer affordability.

7. As regards Operations and Maintenance (O&M) tariff, the data collected by Ministry of Water & Power indicates a range of Rs. 0.60 to 0.65 per kWh based on 84% plant factor. The O&M cost for 1000 MW plants, however, can be reduced slightly, perhaps by approximately 5 paisa/kwh. However, the O&M costs for plants in the range of 200 MW has to be increased substantially, perhaps to the level of Rs. 1/kwh at 84% plant load factor (PLF).

8. The notional figure of 60% Plant Factor calculated for the upfront tariff of coal based power generation may be reconciled to the expected actual capacity utilization of the plant, which would be higher than 60%. The aforementioned request for reconciliation of the Plant Factor to the level of expected actual capacity utilization will still be notional but will reduce the determined upfront tariff ceteris paribus. Since coal plants are inherently the base load plants, expected to run throughout the year, the experts suggest adoption of plant factor of 84% for a coal based power generation plant so that the unit rate of electricity gets calculated based on actual usage expected out of such plants.

9 Your attention is also invited to the fact that NEPRA allows 'return on equity during construction (ROEDC)' and 'withholding tax' on dividends as a standard part of its tariff determination. However, these two items are missing in the subject Upfront Tariff. Given that the coal based power plants take 3-4 years as construction period, denying ROEDC will make the equity returns completely off market. Likewise, denying provision for Withholding Tax deduction on payment of dividends would reduce the promised IRR on equity.

10 Keeping in view the above, the Federal Government under first proviso to Section 31(4) of the NEPRA Act, requires the Authority to reconsider the 6th June 2013 Upfront Tariff Determination for Coal Based Power Generation Projects. Detailed grounds and facts forming basis and rationale for reconsideration of the upfront tariff for coal based power generation are attached herewith at Annex-A.


11. It is requested that fifteen-days' time limit for the reconsideration request as stipulated under Section 31(4) of NEPRA Act be condoned on the ground that:

It was expected that the Upfront Tariff determined by NEPRA on 6th June, 2013 for coal based power generation would attract private sector investment in such power plants, however, the said Upfront Tariff for the coal based power plants failed to attract any investment proposal and the objective of the Federal Government to overcome energy crisis, reduction in energy basket price, improvement in fuel mix through reducing reliance on furnace oil/diesel on fast track basis is not likely to be materialised as envisaged in the Power Policy 2013 duly approved by the Council of Common Interests (CCI).

12 The only way to improve the power mix in the shortest possible time is addition of power generation through coal in the national grid. The Federal Government will appreciate if the existing Upfront Tariff determined by NEPRA on 6th June 2013 for coal based power generation is reconsidered and a rational tariff is decided and announced on top priority basis.

Encl: As above alongwith -

- Vol-I (Annex 1-3)
- Vol-II (Annex 4-7)
- Vol-III (Annex 8-10)
- Vol-IV (Annex 11-14)


(Saif Ullah Chattha)

11.2.2014

Annex-A

**GROUND AND FACTS FOR REVIEW / RECONSIDERATION OF
UPFRONT TARIFF ANNOUNCED BY NEPRA ON 6TH JUNE 2013**

Upfront Tariff Determined by NEPRA

On 6th June 2013, the National Electric Power Regulatory Authority ("NEPRA") announced Upfront Tariff for local as well as imported coal based projects. For 660 MW imported coal based power projects on foreign financing, NEPRA determined the tariff as US Cents 7.7784/kWh while considering total project of US \$ 768,729,000 (i.e. US\$ 1.166 Million / MW) and 42% plant efficiency. Likewise the different per megawatt capital costs and efficiencies are assumed for different sized projects; summary of which is given below:

Description	Local Financing						Foreign Financing					
	200 MW		600 MW		1,000 MW		200 MW		600 MW		1,000 MW	
Coal	Local	Imported	Local	Imp	Local	Imp	Local	Imp	Local	Imp	Local	Imp
Plant Efficiency %	39.5	39.5	42	42	42	42	39.5	39.5	42	42	42	42
Project Cost (Million USD / MW)	1.54	1.54	1.48	1.48	1.34	1.35	1.37	1.37	1.28	1.28	1.16	1.16

2. However the investors have reported that capital, operating & maintenance costs assumed by NEPRA are low and efficiency assumed by NEPRA under various scenarios is high. Ministry of Water and Power based on the feedback of investors have reviewed the capital cost, operation and maintenance costs, efficiency as provided by NEPRA in its tariff determination for upfront tariff for coal based projects and following Grounds /Facts are submitted for reconsideration.

Reconsideration Of Upfront Tariffs For 600 MW Coal Fired Power Projects

CAPITAL COSTS

3. In 2010, United States ("US") Energy Information Administration ("EIA") commissioned an external consultant to develop up-to-date cost and performance estimates for utility-scale electric generating plants for Annual Energy Outlook ("AEO") 2011. This information allowed US EIA to compare the costs of different

power plant technologies on a standardized basis and was a key input enhancement to the National Energy Model System ("NEMS"). For the AEO 2013 development, EIA commissioned the same consultant group to update the cost and performance estimates for each of the technologies evaluated in the original 2010 study (EIA-Updated Capital Cost Estimate for Utility Scale Electric Generating Plants – April 2013). The focus of the 2013 update was to gather current information on the "overnight" construction costs, operating costs, and performance characteristics for a wide range of generating technologies. The term 'Overnight' has been referred to the cost of project as if no interest were incurred during its construction. It is worth considering that the technology considered for a single unit 650 MW advanced pulverized coal plant is taken as US \$ 3,246 /kW i.e. US \$ 3.246 million per MW. The Overnight Cost for dual unit advanced pulverized coal power plant of 1300 MW is US \$2925/kW¹.

A paper by Synapse Energy Economics Inc dated July 2008 on " Coal - Fired Power Plant Construction Costs by David Schlissel, Alleison and Rachel Wilson"² highlights that the estimated costs of building new coal plants have reached \$3500 per KW without financing costs and are still expected to increase further. This would mean a cost of well over US \$ 2 billion for a new 600 MW coal plant when financing costs are included. The paper illustrates that Duke Energy Carolinas cost estimates for two Cliffside coal fired power projects was \$ 2billion as of 2006. Duke announced 47 % increase in cost when project size was reduced to one. They estimated cost of one unit as 1.8 billion \$ exclusive of financing costs. The paper also brings out that estimated cost of APM-Ohio 960 MW was estimated at nearly US \$ 3 billion without financing.

A document 'on Projected Costs of Generating Electricity 2010 Edition' prepared by International Energy Agency/ Nuclear Energy Agency, Organization For Economic Co-operation And Development' ("OECD") clearly states that most coal-fired in OECD countries have overnight investment costs ranging up to US \$ 2800 per kilowatt for plants without carbon capture. Plants with carbon capture have 'Overnight' investment costs ranging from US \$ 3223 to US \$ 6268 per kilowatt.

¹ Source : Page 6 of United States ("US") Energy Information Administration ("EIA") Report "Updated Capital Cost Estimate for Utility Scale Electric Generating Plants – April 2013" Annex 1

² Annex 2

³ Projected Costs of generating Electricity, 2010 Edition, IEA- NEA Annex- 3

Earlier in 2008 AES had completed a Feasibility Study for an integrated jetty and imported coal based power project⁴. on 26th November 2009, NEPRA determined the tariff for 2x660 MW imported coal based power project by AES as US Cents 7.1524/kWh while allowing total project cost of US \$,820.89 million out of which Jetty Cost was US \$188.0 million. Hence without jetty project cost as allowed by NEPRA was US \$1632.89 million (i.e. US \$ 1.2512 Million / MW) and 38.5% plant efficiency⁵.

In 2008, Mitsui also conducted feasibility study for 2x660 MW imported coal based power plant adjacent to AES site. As per the feasibility numbers, Mitsui worked out the tariff as US Cents 9.5/kWh while considering total project cost of US \$ 2,563,315,242, out of which US \$ 36,300,000 were estimated for sea cranes and other allied marine costs. Hence without marine costs the project was estimated at the cost of US \$ 2,527,015,242 (US \$1.99144 Million / MW) and 39% plant efficiency⁶. AES and Mitsui costs quoted are excluding the Jetty cost.

Likewise, US Power Consultant has completed the feasibility study⁷ for 2x660 MW Power Project at Jamshoro based on super critical technology in Oct 2013. The total cost including EPC, Contractor Charges and Interest During Construction has been estimated as US \$ 2290 million i.e. US \$ 1.908 Million / MW.

Based on the above data and feed-back provided by number of investors it can be concluded the capital cost for 660 MW unit assumed by NEPRA at US \$1.167 million is not market based. While comparable cost estimates based on Western standards would range around US \$3 Million/MW, the GOP believes that the primary source of equipment and supplies will be coming out of China for these projects in Pakistan and the costs estimates will be lower, but clearly not as low as US \$1.167 Million/MW inclusive of financial and other charges as assumed by NEPRA. Two recent visits and interactions of government delegations with the Chinese companies, and a recently commissioned feasibility study by the Punjab Government for such plants by SEPCO-III of China, estimate EPC part of the cost for a 660 MW project to be around US \$ 1.25-1.3 Million/MW. Using this as a base, and using foreign financing, the total cost estimates come out in the range of US \$ 1.45 to

⁴ Executive Summary of AES is placed at Annex 4

⁵ NEPRA determined tariff for AES on 26th November 2009 is placed at Annex -5

⁶ Executive Summary of Feasibility Study conducted by Mitsui is placed at Annex - 6

⁷ Feasibility Study of Jamshoro 2x 660 MW Power Project is placed at Annex -7)

US \$ 1.50 Million / MW keeping all other assumption used by NEPRA. The GOP therefore requests reconsideration accordingly.

EFFICIENCY

Historically steam turbine based technology had been the main workhorse of the power generation technology. The efficiency levels achievable in Rankine cycle did not see much improvement until early nineties since the primary focus had been shift to gas turbine technology. Until such time the sizes of individual units rarely exceed 500 MW each and the net power generation efficiencies for such plants were generally in the mid 30 percent range. Since then improvements have been brought in this sector also and today the sizes of large coal plants range from 600 MW up to 800 MW each, while the net plant efficiencies technically achievable are in the range of 38%-40% for routine production and experimental technologies are achieving up to net 42%-43% net efficiencies. In our opinion, Pakistan should only use standard technologies that are in routine production since we do not even have the expertise for basic subcritical coal plants.

For the purpose of explanation of this ground for review, the following terminologies need to be defined first.

- i. **Gross Plant Heat Rate and Net Plant Heat Rate:** The gross plant heat rate is the measure of BTU/KWh (or KI/KWh) for the total generation of the power plant, measured at the generator terminals of the steam turbine-generator. Net Plant heat rate is the measure of BTU/kWh (or KI/KWh) based on the net sent out, after consumption of auxiliary load of the plant itself. The difference between the two is the power being consumed by the plant itself and the transformer losses for stepping up the generation before being sent out to the grid. One of the main reasons that the efficiency is normally quoted on a Gross basis is that auxiliary load and the transformer losses are unique to each site and cannot be quoted as standard. NEPRA allows tariff, and the power purchaser pays, based on this net capacity and energy delivered at the high side of the step up transformer terminals. To give an example, if gross plant efficiency is quoted as 41%, then with an auxiliary load of 7%, this translates to a net efficiency of 38%.

- ii. **HHV and LHV Factor:** As a general industry practice, fuels are sold at Higher Heating Value (HHV), which is the measure of total BTUs (or KJs) per unit of weight or volume. However, when fossil fuels are combusted, a certain portion of these BTUs are not available since they are retained as latent heat in the water vapour, and therefore the real energy available is the measured by Lower Heating Value (LHV). The most common way to account for this is that a HHV-LHV factor is applied to the heating value of fuel, in order to come up with the real usage BTUs (or KJs) before taking that as the heat input for determining efficiency of a power plant.

All power equipment is rated on the basis of LHV and gross output at generator terminals of the turbine/ engine generator. Therefore, to say that a plant has "42% efficiency" is insufficient information, unless it is stated whether this is Gross Plant Heat Rate or Net. Also, if there is no separate HHV-LHV factor applied on the fuel itself then the Net Plant heat rate will give an incorrect estimate of fuel used. Since NEPRA rates are based on net plant heat rates and NEPRA allows a HHV-LHV correction factor, we need to ensure that when we talk about efficiency of power plants, we adjust it to Net efficiency at the transformer terminals; otherwise the comparison will be using different assumptions.

- iii. **Impact of Coal Quality on Efficiency:** It is to be mentioned that for the same location, a plant using hard (high calorie) coal can achieve 2% higher efficiency than a plant using sub-bituminous or lignite coal of medium or low heating value. Since we will be using either imported sub-bituminous coal or local/imported lignite, we cannot design at the higher end of the efficiency*. It is to be noted that standard efficiency numbers quoted by Chinese manufacturers are based on design of 7000 Kcal/kg coal*.

- iv. **Subcritical versus Supercritical:** Another matter which requires explanation is the difference between the terms "Supercritical" versus "Subcritical Technology". In layman's terms, the "supercritical" threshold is simply the operating pressure of a boiler, which is approximately 220 bar. Units at or above the 220 bar mark are supercritical while those below

* Reference: IFC Coal Advisory Board Report titled "Power Generation from Coal", placed at Annex-8, page 50

are subcritical. Thermal efficiency is explained by way of a simple example for the purposes of this reconsideration request.

Example: In a steam power plant, the power is generated when superheated steam turns a steam turbine. With some caveats, the more the energy steam can carry, the better the performance. Supercritical pressure is that pressure at which the water converts from liquid form to steam without boiling, i.e., the liquid versus vapour form are indistinguishable. Beyond this point, an increase in pressure does not proportionately increase the latent energy in steam. Nonetheless, it needs to be understood that supercritical plants can also be designed to operate at higher than 220 bar pressure but the incremental reduction in fuel cost may or may not justify the incremental investment. The level that they are actually designed at depends on a lot of other factors, but one of the key factors is the metallurgy of the boiler. So, a supercritical boiler can be designed to achieve a 41% "net efficiency" if a much higher level of capital cost is spent on it, versus a supercritical plant with 38% efficiency that can be built at lower capital cost.

With this exposition, we would like to point out that the current level of 42% "net plant heat rate" provided for the 600 MW power plant upfront tariff implies a gross plant heat rate of over 45%. While this is technically possible, it is still in somewhat experimental stages and is very expensive. Conversely, if we use the standard production modules of 600 MW units being made in China, they operate in the range of 41% gross heat rate, which translates to approximately 38.5% net efficiency.

As per International Energy Agency, Power Generation from Coal 2010 report¹⁰, the average efficiency of all coal plants in the world is approximately 35.1% (gross). However this includes a lot of old plants. According to the same report, the annual average efficiency of new coal plants in 2005 for Germany, UK, USA, Japan, Korea, and Italy was 38%-40%, while that for India, China, Russia, South Africa, and Australia, was in the range of 35%-38% (page 58). A report titled "International Comparison of Fossil Power Efficiency and CO₂ intensity" by ECOFYS dated 2011¹¹ corroborates this data and adds that the highest efficiencies achieved in the world for coal power are 41% for France and approximately 40% for Nordic countries.

¹⁰ Ibid, page 57

¹¹ Annex 9

According to EIA report (page 57-59), the average European Efficiency levels were 38% in 2010, while the state-of-the-art technology between 2010 and 2015 is expected to hit a maximum of 45% efficiency (gross), again without regard to the expense of such technology. In last quarter 2013, EnBW's RDK 8 power plant in Germany started up and is considered to be the most efficient coal fired power plant at 46% efficiency. All the data reported is for gross efficiency.

According to Energy Information Administration of the United States government, report, titled "Updated Capital Costs Estimates for of Utility Scale Electricity Generating Plants" of April 2013¹², the average net efficiency of new supercritical plants in the United States is in the range 38.7%. This translates to about of 41%-42% (gross) efficiency; but this comes along with a cost of approximately US \$3.2 million/MW for single units and US \$2.9 million/MW for double units¹³. According to US EIA "Annual Electric Generator Report" for 2012, the average heat rate is 33.4% (net) for all steam plants, which includes the high efficiency supercritical plants as well. By extension, the new smaller sized coal plants have efficiencies not below 33% and not above the average of 38%.

Plants that are subcritical but reaching high efficiencies, in the USA, are in the range of 36%-37% net efficiency but again costing around US \$2.5-\$3 million/MW¹⁴. The average efficiency of coal power plants in the world is 33% and the most efficient is 45%. While the capital cost for the same has not yet been disclosed, but it is estimated to be approximately Euro 4 million/MW based on data from the contractors. Finally, according to the referenced EIA report (page 6) the capital cost is US \$5.2 million/MW if Carbon Capture System is included, and the efficiency for such a plant drops down significantly due to the Carbon Capture System's own power needs.

On 31st March 2005, the Gujarat Electricity Regulatory Commission (GERC) issued regulations for Terms and Conditions of Tariff¹⁵ (the GERC Tariff Regulations), including those for coal plants. These regulations show an efficiency of 36.4% (gross) for plants higher than 500MW and 35% (gross) for the plants around 200 MW.

¹² See Annex 1

¹³ Page 6 of ibid

¹⁴ "A Comparison of PC, CFB and RGC Technologies for Basin Electric Power Cooperative's Dix Fork Station" by CH2M Hill, placed at Annex 10)

In China most new power plants being built are supercritical units with gross efficiencies of approximately 41% (or net 38% efficiency). Reportedly there are six Ultra Supercritical plants in construction and two that have gone into operation recently. However, these are still experimental units in China as well and their efficiency levels are slightly lower than the comparable ones mentioned in the West.

Based on the above references and data, from international or governmental agencies, it is clear that supercritical plants reaching gross efficiencies of up to 43%-45%, which translate to net efficiencies of 40%-41% are technically possible, but the same come along at very high capital costs ranging from US \$3-\$5 million/MW.

We believe that the right level of "net plant" efficiency for the supercritical plants of 600 MW units each has to be balanced with the capital cost that is affordable for Pakistan, and can therefore be based only on standard Chinese modules being made at this level. We believe that level to be 39% at most, which translates to approximately 41%-42% gross efficiency. You may be aware that the Punjab government recently commissioned a feasibility study for such a plant at Sahiwal being done by SEPCO-3. While this report is in finalization stages, the Punjab government has been advised that the achievable net efficiency is 38.5%, which corroborates the views of the Ministry of Water & Power.

While the focus of this section has been primarily on the 600 MW units, we would like to add that:

- a. For units up to 1000 MW, the net efficiency can be increased by approximately 1% if the unit size being used is at least 800 MW each, or if two units of at least 600MW are installed at the same place and are integrated for purposes of auxiliary consumption.
- b. For small plants in the range of 200 MW, the efficiency ranges are reported to be 35%-37% as per CMD paper titled "Coal Power Technologies"¹⁰. Also, a report by Massachusetts Institute of Technology's 2007 paper titled "Future of Coal"¹¹, states subcritical efficiency of 34.3%. Several independent studies from different engineering companies around the world report that. The GERC Tariff Regulations has specified a rate of 35% (gross)¹². The actual data

¹⁰ Annex 12

¹¹ Annex 13

¹² See Annex 11

from existing plants, of course, show the numbers to be lower than that since they include older plants as well.

In light of the above, we request that NEPRA revise its upfront tariff efficiency levels for 600 MW units to 39% (net), for 1000 MW plants to 40% (net) and for 200 MW plants to be 36% (net).

OPERATIONS AND MAINTENANCE COSTS

NEPRA has allowed Fixed O&M Cost in the tariff for 600 MW Imported Coal based projects as Rs. 0.2870/kWh (Cents 0.2956) and Variable O&M Costs as Rs. 0.132/kWh (Cents 0.1360/kWh). It adds up to total O&M Cost as Rs. 0.4190/kWh (Cents 0.4815/kWh) using the exchange rate of Rs 97.1 assumed by NEPRA.

In EIA Report¹⁹ of April 2013 Fixed O&M costs for 650 MW single unit Advanced Pulverized Coal (PC) plants are estimated as US \$ 37.80 /kW/year. This translates into 0.7192 US Cents/kWh at 60% plant factor and 0.5137 Cents/kWh at 84% plant factor and by using the reference Rupee-Dollar parity of 97.1 it works out to be Rs. 0.6983/kWh and Rs. 0.4988 respectively. Similarly the Variable O&M in the same report has been given as US \$ 4.47/MWh. This translates to 0.447 cents / kWh and equivalent to 0.4340 /kWh. Against total O&M Cost of Rs. 0.419/kWh (Cents 0.4315/kWh) allowed by NEPRA in Upfront Coal Tariff, the EIA report estimates these costs as Rs. 1.1324/kWh (Cents 1.1662/kWh).

The GERC Tariff Regulations²⁰ stipulate normative O&M Expenses for Lignite based plants as Indian Rupees 1,217,000/MW (2008-09 figures) which translates to US Cents 0.5308/kWh at 60% plant factor. If this number is indexed for inflation @8% per annum it translates to US Cents 0.7222/kWh (Pak Rs. 0.7583 at current Rs/US \$ rate of 105).

A study carried out by CH2MHILL for Comparison of PC, CFB and ICC Technologies²¹ in June 2007 provides Fixed and Variable O&M Costs as US \$ 30,100,000 for a 368 MW Power Plant which translate to be US Cents 1.5562/kWh at 60% plant factor and US Cents 1.1116 /kWh at 84% plant factor.

¹⁹ See Page 6 of Annex I

²⁰ See Annex II

The aforesaid data indicates a very wide range of annual O&M Costs, however, in the perspective of Upfront Tariff for Coal Projects of 660 MW the various sponsors are of the view that the O&M Cost should be in the range of Rs. 0.60 to 0.65 per kWh based on 84% plant factor.

ROEDC & WITHHOLDING TAX

Twelve (12) IPP projects have been commissioned under Power Policy 2002. NEPRA while determining their tariffs allowed withholding tax @ 7.5 % in all cases in addition to Return on Equity during Construction (ROEDC) period. Details of tariffs earlier determined by NEPRA allowing ROEDC and Withholding Tax are attached at Annex-14. However, these two items are missing in Upfront Tariff. Given that these coal plants have construction time of 36 to 48 months, non-provision of ROEDC reduces the equity returns and makes the coal projects less attractive for investors while in reality these projects should be encouraged in order to reduce the overall pool price for power generation.

CHANGE OF PLANT FACTOR FROM 60 % TO 84 %

It is appropriate to change the notional figure of 60% as usually taken on account of PLF to convert the capacity payment into unit pricing. This figure is completely notional and has no bearing on actual payments being made. Such payments being made are based on the actual dispatch of the plants. Since coal plants are inherently the base load plants, expected to run throughout a year, the experts suggest assuming the plant factor of 84% for a coal based power generation plant. It therefore follows that the unit rate should be calculated based on actual usage expected out of such plants. NEPRA has earlier determined tariff for wind, solar and hydro power projects based on plant factor in line with the utilization of these projects depending on the resource availability. It is to be noted that PLF used in GERC Tariff Regulations²² is 80%. The PLF in Bangladesh is 85%.

Reconsideration Of Upfront Tariffs For 200 And 1000 MW Coal Fired Power Projects

As no investor has indicated interest in the Upfront Tariffs for 200 and 1000 MW Coal Fired Power Projects it is also required to be reviewed so that investors can

²² See Annexure II

develop power projects in order to reduce the average power generation costs in the country and eliminate the menace of circular debt. According to the feedback from potential investors, as well as the data quoted above, the capital costs per MW for smaller projects in the range of 200 MW need to be around US \$1.6-\$1.7 mm/MW while that of 1000 MW to be in the range of US \$1.35-\$1.4 million/MW.

Whereas the thermal efficiency needs downwards revision as stated earlier, the O&M cost for 1000 MW plants can be reduced slightly, perhaps by approximately 5 paisa/kwh. However, the O&M costs for plants in the range of 200 MW has to be increased substantially, perhaps to the level of Rs 1/kwh at 84% plant load factor (PLF). Hence NERPA is requested to also review the Upfront Tariffs for these projects based on the aforementioned grounds.

Rising hydroelectric power tariff – a case for reform

By SYED AKHTAR ALI

Published: July 2, 2018

Recently, another bidding process got under way for 2,160-megawatt first-stage of the Dasu hydroelectric power project, which is being constructed in the Kohistan district of Khyber-Pakhtunkhwa under World Bank financing and of others. PHOTO: REUTERS

ISLAMABAD: We have earlier in this space written about reforming the China-Pakistan Economic Corridor (CPEC), identifying cases of excessive capital expenditure (capex) and tariff over-charging.

Capex for coal projects was about 40% higher than international costs and coal power tariff was 8.4 US cents per unit as opposed to a tariff in many jurisdictions of 5 cents and below.

In the meantime, more evidence has emerged. Recently, there were bids for the Jamshoro coal power plant wherein bids for engineering, procurement and construction (EPC) contract were one half than that for similar CPEC projects.

Recently, another bidding process got under way for 2,160-megawatt first-stage of the Dasu hydroelectric power project, which is being constructed in the Kohistan district of Khyber-Pakhtunkhwa under World Bank financing and of others. The project has two stages with cumulative capacity of 4,260MW.

Contracts for civil works have already been awarded. A recent bid was for electro-mechanical works including turbine, pressure shaft, etc. In this case too, there was the same trend. Bids were lower by 50% or even more compared to those for similar projects.

A comparison of different projects shows that unit costs vary widely. Karot has 2.03 times the reference cost for Dasu, Kohala 3.31 times, Azad Pattan 3.97 times, Suki Kinari 2.38 times and Mahl 2.50 times.

Admittedly, one of the projects has yet to be approved, but keeping the past history in view, it appears that the National Electric Power Regulatory Authority (Nepra) may approve higher costs and tariff. Apart from the lowest prices for Dasu, there is a wild variation among Nepra- CPEC projects. This throws credibility of EPC tenders in question.

Cost differences

There are two institutions that are fundamentally responsible for such egregious cost variations – Private Power and Infrastructure Board (PPIB) and Nepra. We need energy,

but at competitive costs that we can afford and lets exporters compete in overseas markets.

In this case, none of the two are happening. There is circular debt because supply costs are high and government cannot afford subsidy. Exports went down because of lack of energy and now if this trend of awarding unreasonably high-priced projects continues, exports will suffer due to expensive energy.

In a recent interview, the PPIB managing director extricated himself by asserting that Nepra increased the PPIB-estimated capex from \$1.1 million per MW to \$1.44 million. An independent Nepra was made to announce neutral and independent awards and determination and the requisite organizational status was given to it.

There is something wrong somewhere. Stock-taking and reform is certainly required. In very rare cases in the past, one has been happy to see some spine and effort on the part of Nepra to withstand the pressure and apply its mind independently.

Admittedly, the task of Nepra in determining capex and tariff is not easy. It is not easy to get right data from independent sources. Yes, one cannot get data for free, but on payment abundant data and information from third-party sources is available.

But Nepra tends to cut corners in this respect and gives away hundreds of millions of dollars in higher tariff than paying to consultants hardly over \$100,000.

Study

As member energy of the Planning Commission, I proposed a comprehensive study on the rising cost hydroelectric power projects. It was approved, but nothing seems to have happened in the meantime. Nepra and the Planning Commission should put their acts together and commission the study.

There are many other things Nepra can do. Apparently but certainly, the competitive bidding required under Nepra processes is not working. Sponsors manage to obfuscate the process and come up with inappropriate project budgets.

It is widely known that sponsors hardly bring their own equity and finance the entire project through bank borrowing, resulting in a higher generation tariff. On top of that, Nepra is fond of giving higher and higher return on equity of 17% and more. **On zero equity, any return is a windfall.**

Hydroelectric power used to be the cheapest source of electricity. It is no more as it is now costing 8 to 10 cents as opposed to 5 cents or even lower for solar and wind energy.

Even hydroelectric power is not priced more than 4 cents in most jurisdictions in the world.

Why it is expensive in Pakistan is indicated in the table. The hydroelectric power industry should contemplate as to who would buy electricity in such a situation.

Proposals

Coming back to the EPC bidding and capex issue, here are some reform suggestions: 1) a more vigilant overseeing of the EPC bidding process has to be introduced. It cannot be left to sponsors, after all the cost and penalty is passed on to the consumer under cost-plus tariff or even otherwise.

2) Breaking the EPC into a number of components and inviting separate bids. This is particularly true for hydroelectric power projects. Nepra's EPC limping approach has done much harm. There was a time when there used to be no EPC contractors and Nepra insisted on EPC bidders. As a result, phony contractors were invented by the sponsors with the resultant impact on costs.

Some kind of tariff rationing has to be introduced in which Nepra, the Central Power Purchasing Agency-Guarantee (CPPA-G) and the Power Division may have to apply their minds. I would propose an upper limit of 6 US cents and above that no project should be entertained. If some projects are to be chopped off the list, then let it be.

It is time to revise the list of CPEC projects, along with some negotiations with the Chinese government, and add more competitive projects like solar, wind and hybrid solar and wind. We need 10,000MW to be able to bring the average tariff down and reduce fuel imports.

The writer is former member energy of the Planning Commission

Published in The Express Tribune, July 2nd, 2018.

Link: <https://tribune.com.pk/story/1747504/2-rising-hydroelectric-power-tariff-case-reform/>

SECTION-B

OVERPAYMENTS TO THERMAL IPP'S (2002 POLICY)

Overpayments to Thermal IPP's in Excess Of their Legitimate Rate of Return

Financial Analysis of IPPs based on Audited Financial Statements of the Company For The Year 2010-2018 & Projected Excess Profit for Remaining Tenure						
			US Dollar (\$)		US Dollar (\$)	US Dollar (\$)
S. No.	IPP Name	No. of Years Excess Profit Already Paid (2010-2018)	Excess Profit Already Paid (2010-2018)	No. of Years for Remaining Project Tenure	Projected Excess Profit For Remaining Project Tenure (If tariff not revised)	Total Excess Profit Over Contract Period
1	Nishat Chunian Power Ltd. (NCPL)	9	200,707,051	16	356,812,535	557,519,586
2	Nishat Power Ltd. (NPL) **	9	188,058,325	16	334,325,911	522,384,236
3	Saif Power Ltd. (SPL)	9	90,072,737	16	160,129,310	250,202,047
4	Sapphire Power Ltd. (SHPL)	9	81,184,408	16	144,327,836	225,512,244
5	Atlas Power Ltd. (APL)	9	151,047,421	16	268,528,748	419,576,169
6	Libert Power Ltd. (LPL)	10	208,808,966	15	313,213,449	522,022,415
7	Attock Generation Ltd. (AGL)	9	271,457,238	16	482,590,645	754,047,883
8	Narowal Energy Ltd. (HUBCO Narowal)	2	29,217,809	23	336,004,804	365,222,613
9	Orient Power Ltd. (OPL)	9	51,597,468	16	91,728,832	143,326,300
	Total		1,272,151,423		2,487,662,071	3,759,813,494

Thermal IPP's set under the 2002 Power Policy

(<http://www.ppib.gov.pk/PowerPolicy2002.pdf>) and NEPRA Tariff Determination

(<https://www.nepra.org.pk/Tariff/IPP/Nishat%20Chunian/2007/TRF-70%20%20NCPL%20%206%20-03-07.pdf>) were entitled to a 15% rate of return on equity on a cost plus basis.

However the projects set up under this policy have been posting returns in dollar terms in excess of 50%. This could only have been possible if the tariff setting process of NEPRA was compromised. These are given in their Annual Published Reports duly verified by SECP (ANNEX-A).

The heads which were manipulated at the tariff determination stage are as follows and are the means by which the extraordinary return have been generated.

- Fuel cost
- Variable O & M
- Late Payment Charges
- Fixed O & M
- Insurance
- Debt Servicing
- ROB & ROEDC
- Other Income
- Miscellaneous

A detailed analysis of the extraordinary profitability of Nishat Chunian on these accounts is attached as an example.

In addition to the higher than allowed return on equity, it is common knowledge that the capital cost of each project has been overstated and the machinery supplier/EPC contractor has accommodated the “so called” investor by giving a cash rebate which is estimated to be more or less equal to the 20% equity investment. There does not appear to be any “real” investment of equity in these projects.

A cost analysis of capital cost of similar plants with the same machines installed in comparable countries across the world have been found to be significantly lower. NAB Lahore has made significant progress in detailed investigation on this point. Other projects need to be scrutinized and investigated on this count as well.

Another, off the book, mechanism to generate additional funds basically is the fuel oil project, managed through having declared 45% plant efficiency whereas the machines were 47.4% efficient. This has had two negative impacts; first, it shifted the cash flow in a way to generate additional rate of return, and secondly, it generated a surplus of fuel oil which could then be sold in the black market siphoning money from the public listed company for the personal use of management.

To sum it all up, the fact that these IPP's are generating fantastic dollar based returns instead of the 15% allowed is proof in itself of a serious collapse / misuse of the system. Even if the issues regarding ghost equity and sale of excess fuel are ignored for the time being the excess profit should be returned to the state and the contracts amended for the contract time remaining.

FINANCIAL ANALYSIS									
NISHAT CHUNIAN POWER LIMITED									

**Amount in
Million Rupees**

	2010-2011		2011-12		2012-13		2013-14		2014-15		2015-16		2016-17		2017-18	
TARIFF COMPONENTS	Additional profit	% of Equity	Additional profit	% of Equity	Additional profit	% of Equity	Additional profit	% of Equity	Additional profit	% of Equity	Additional profit	% of Equity	Additional profit	% of Equity	Additional profit	% of Equity
Energy Charges																
Fuel Cost	439		415	11%	604	16%	574	16%	629	17%	39	1%	83	2%	143	4%
Variable O&M	606		113	2%	505	14%	695	19%	822	22%	1024	28%	1073	29%	880	24%
Late Payment Charges	448		834	23%	606	17%	324	9%	330	9%	304	8%	281	8%	403	11%
Sub-Total	1493		1263	37%	1715	47%	1592	43%	1781	48%	1367	37%	1438	39%	1427	39%
Capacity Charge:				9%		0%		0%		0%		0%		0%		0%
Fixed O&M	231		249	7%	262	7%	231	6%	210	6%	75	2%	26	1%	84	2%
Insurance	20		23	1%	22	-1%	1	0%	2	0%	4	0%	4	0%	4	0%
Debt Servicing	239		744	20%	349	-10%	60	6%	187	-5%	23	-1%	104	-3%	201	-5%
ROB & ROEDC	687		771	21%	870	24%	944	0%	860	23%	933	25%	959	26%	965	26%
Other Income	45		34	1%	156	4%	86	-2%	29	1%	86	2%	36	1%	36	1%
Late Payment Charges	85		231	0%	351	10%	227	6%	339	9%	40	1%	102	3%	140	4%
Miscellaneous	4		10	0%	80	-2%	18	-1%	30	-1%	20	1%	33	1%	91	2%
Sub-Total	833		574	16%	1187	32%	1409	38%	1219	33%	1128	31%	1049	29%	1112	30%
Grand Total	2326		1936	53%	2902	79%	3001	82%	3000	82%	2495	68%	2487	68%	2539	69%

[illegible]

ANNEX-A

Financial Analysis of IPPs based on Audited Financial Statements of the Company For The Year 2010-2018

S. No.	IPP Name	Rupees (Rs)			US Dollar (\$)			Data for Years
		Guaranteed Return 15%	Actual Return	Excess Return	Guaranteed Return 15%	Actual Return	Excess Return	
1	Nishat Chunian Power Ltd. (NCPL)	4,408,162,800	21,528,474,301	17,120,311,501	51,678,345	252,385,396	200,707,051	2010-2018
2	Nishat Power Ltd. (NPL) **	3,717,929,250	19,759,304,340	16,041,375,090	43,586,509	231,644,834	188,058,325	2012-2018
3	Saif Power Ltd. (SPL)	5,192,248,145	12,875,452,573	7,683,204,428	60,870,435	150,943,172	90,072,737	2010-2018
4	Sapphire Power Ltd. (SHPL)	5,625,210,156	12,550,240,180	6,925,030,024	65,946,192	147,130,600	81,184,408	2010-2018
5	Atlas Power Ltd. (APL)	6,399,000,000	19,283,345,000	12,884,345,000	75,017,585	226,065,006	151,047,421	2010-2018
6	Libert Power Ltd. (LPL)	6,055,009,200	23,866,414,000	17,811,404,800	70,984,868	279,793,834	208,808,966	2011-2018
7	Attock Generation Ltd. (AGL)	3,367,330,650	26,522,633,000	23,155,302,350	39,476,326	310,933,564	271,457,238	2010-2018
8	Narowal Energy Ltd. (HUBCO Narowal)	1,176,564,900	3,668,844,000	2,492,279,100	13,793,258	43,011,067	29,217,809	2017-2018
	Total	35,941,455,101	140,054,707,394	104,113,252,293	421,353,518	1,641,907,473	1,220,553,955	
1	Halmore Power Limited (HPL)	8,844,658,055	5,219,271,656	(3,625,386,399)	103,688,840	61,187,241	(42,501,599)	2010-2018

** Data / Audited Financial Statements of Nishat Power Ltd. (NPL) is not available for two years 2010 & 2011.

Financial Analysis NCPL

Based on data from Audited Financials of the Company from the year 2010-2018

Note: Debt to Equity Ratio as per NEPRA was 75:25 at inception of the project but actual Debt to Equity ratio in the year 2010 at the start of project was 80:20

Note: IPPs are exempt from corporate tax.

Data / Ratio	Cumulative to date	2018	2017	2016	2015	2014	2013	2012	2011	2010
Debt (Rs)		5,573,608,000	7,504,386,000	9,171,718,236	10,604,150,708	11,836,995,048	12,898,060,793	13,811,282,789	14,846,004,848	14,991,503,693
Debt (\$)		45,911,104	71,640,916	87,935,937	104,474,391	120,111,568	130,811,976	146,928,540	172,929,585	175,750,336
D/E Ratio		52:48	62:38	67:33	71:29	74:26	75:25	77:23	80:20	80:20
Equity (Rs)	3,673,469,000	3,673,469,000	3,673,469,000	3,673,469,000	3,673,469,000	3,673,469,000	3,673,469,000	3,673,469,000	3,673,469,000	3,673,469,000
Equity (\$)		43,065,287	43,065,287	43,065,287	43,065,287	43,065,287	43,065,287	43,065,287	43,065,287	43,065,287
Profit (Rs)	21,528,474,301	3,406,385,000	2,999,751,000	2,756,242,265	3,090,313,123	2,900,758,908	2,737,491,941	2,025,098,642	1,612,433,422	
Profit (\$)	252,385,396	39,934,174	35,167,069	32,312,336	36,228,759	34,006,552	32,092,520	23,740,898	18,903,088	
Exchange Rate (Rs/\$) as on 30th June		121.40	104.75	104.30	101.50	98.55	98.60	94.00	85.85	85.30
Return on Equity % (\$)	73.26%	92.73%	81.66%	75.03%	84.13%	78.97%	74.52%	55.13%	43.89%	
Exchange Rate (Rs/\$) as per NEPRA		85.30	85.30	85.30	85.30	85.30	85.30	85.30	85.30	85.30

Return at 15% guaranteed in \$	51,678,345	6,459,793	6,459,793	6,459,793	6,459,793	6,459,793	6,459,793	6,459,793	6,459,793	
Excess Return in \$	200,707,052	33,474,380	28,707,276	25,852,543	29,768,966	27,546,759	25,632,727	17,281,105	12,443,295	

Guaranteed Return in Rs	4,408,162,800	551,020,350	551,020,350	551,020,350	551,020,350	551,020,350	551,020,350	551,020,350	551,020,350	
Excess Return in Rs	17,120,311,501	2,855,364,650	2,448,730,650	2,205,221,915	2,539,292,773	2,349,738,558	2,186,471,591	1,474,078,292	1,061,413,072	

Financial Analysis of Nishat Power Limited (NPL)

Based on data from Audited Financials of the Company from the year 2012-2018

Note: Debt to Equity Ratio as per NEPRA was 75:25 at inception of the project but actual Debt to Equity ratio in the year 2012 was 77:23

Note: IPPs are exempt from corporate tax.

Data / Ratio	Cumulative to Date	2018	2017	2016	2015	2014	2013	2012	2011	2010
Debt (Rs)		3,040,170,000	5,092,325,000	6,857,093,000	8,376,351,000	9,682,778,000	10,806,632,070	11,991,648,241		
Debt (\$)		35,640,914	59,699,004	80,387,960	98,198,722	113,514,396	126,689,708	140,582,043	-	-
D/E Ratio		46:54	59:41	66:34	70:30	73:27	75:25	77:23		
Equity (Rs)	3,540,885,000	3,540,885,000	3,540,885,000	3,540,885,000	3,540,885,000	3,540,885,000	3,540,885,000	3,540,885,000		
Equity (\$)		41,510,961	41,510,961	41,510,961	41,510,961	41,510,961	41,510,961	41,510,961	-	-
Profit (Rs)	19,759,304,340	3,211,416,000	2,886,429,000	2,851,065,000	3,116,709,000	2,917,330,000	2,739,467,330	2,036,888,010	-	-
Profit (\$)	231,644,834	37,648,488	33,838,558	33,423,974	36,538,206	34,200,821	32,115,678	23,879,109	-	-
Exchange Rate (Rs/\$) as on 30th June		121.40	104.75	104.30	101.50	98.55	98.60	94.00	85.85	85.30
Return on Equity % (\$)	79.72%	90.70%	81.52%	80.52%	88.02%	82.39%	77.37%	57.52%		
Exchange Rate (Rs/\$) as per NEPRA		85.30	85.30	85.30	85.30	85.30	85.30	85.30	85.30	85.30

Return at 15% guaranteed in \$	43,586,509	6,226,644	6,226,644	6,226,644	6,226,644	6,226,644	6,226,644	6,226,644	-	
Excess Return in \$	188,058,325	31,421,843	27,611,914	27,197,330	30,311,562	27,974,176	25,889,034	17,652,465	-	

Guaranteed Return in Rs	3,717,929,250	531,132,750	531,132,750	531,132,750	531,132,750	531,132,750	531,132,750	531,132,750	-	
Excess Return in Rs	16,041,375,090	2,680,283,250	2,355,296,250	2,319,932,250	2,585,576,250	2,386,197,250	2,208,334,580	1,505,755,260	-	

Financial Analysis of Saif Power Limited (SPL)*Based on data from Audited Financials of the Company from the year 2010-2018**Note: IPPs are exempt from corporate tax.*

Data / Ratio	Cumulative to Date	2018	2017	2016	2015	2014	2013	2012	2011	2010
Debt (Rs)			2,858,104,162	4,761,277,269	6,404,276,170	7,823,222,915	9,249,148,209	10,108,719,395	11,102,697,753	11,817,297,141
Debt (\$)		-	33,506,497	55,818,022	75,079,439	91,714,219	108,430,811	118,507,848	129,326,706	138,538,067
D/E Ratio			43:57	55:45	62:38	67:33	71:29	72:28	74:26	76:24
Equity (Rs)		3,864,717,790	3,864,717,790	3,864,717,790	3,864,717,790	3,864,717,790	3,864,717,790	3,864,717,790	3,864,717,790	3,697,245,310
Equity (\$)		45,307,360	45,307,360	45,307,360	45,307,360	45,307,360	45,307,360	45,307,360	45,307,360	43,344,025
Profit (Rs)	12,875,452,573		2,592,124,944	2,312,333,355	2,062,615,152	1,987,980,652	1,224,786,062	1,454,542,748	779,069,660	462,000,000
Profit (\$)	150,943,172	-	30,388,335	27,108,246	24,180,717	23,305,752	14,358,570	17,052,084	9,133,290	5,416,178
Exchange Rate (Rs/\$) as on 30th June		121.40	104.75	104.30	101.50	98.55	98.60	94.00	85.85	85.30
Return on Equity % (\$)	60.09%	0.00%	67.07%	59.83%	53.37%	51.44%	31.69%	37.64%	20.16%	12.50%
Exchange Rate (Rs/\$) as per NEPRA		85.30	85.30	85.30	85.30	85.30	85.30	85.30	85.30	85.30

Return at 15% guaranteed in \$	60,870,435	6,796,104	6,796,104	6,796,104	6,796,104	6,796,104	6,796,104	6,796,104	6,796,104	6,501,604
Excess Return in \$	90,072,737	(6,796,104)	23,592,231	20,312,142	17,384,613	16,509,648	7,562,467	10,255,980	2,337,186	(1,085,426)

Guaranteed Return in Rs	5,192,248,145	579,707,669	579,707,669	579,707,669	579,707,669	579,707,669	579,707,669	579,707,669	579,707,669	554,586,797
Excess Return in Rs	7,683,204,429	(579,707,669)	2,012,417,276	1,732,625,687	1,482,907,484	1,408,272,984	645,078,394	874,835,080	199,361,992	(92,586,797)

Financial Analysis of Sapphire Power Limited (SPL)

Based on data from Audited Financials of the Company from the year 2010-2018

Note: Debt to Equity Ratio as per NEPRA was 75:25 at inception of the project but actual Debt to Equity ratio was 76:24

Note: IPPs are exempt from corporate tax.

Data / Ratio	Cumulative to Date	2018	2017	2016	2015	2014	2013	2012	2011	2010
Debt (Rs)		2,726,064,415	4,560,987,792	6,135,535,209	7,486,654,059	8,679,641,214	9,808,886,987	10,796,959,609	11,543,081,910	11,292,610,611
Debt (\$)		31,958,551	53,469,962	71,928,900	87,768,512	101,754,293	114,992,813	126,576,314	134,456,400	132,386,994
D/E Ratio		39:61	52:48	59:41	64:36	67:33	70:30	72:28	73:27	76:24
Equity (Rs)		4,240,213,570	4,240,213,570	4,240,213,570	4,240,213,570	4,240,213,570	4,240,213,570	4,240,213,570	4,227,113,550	3,592,792,500
Equity (\$)		49,709,421	49,709,421	49,709,421	49,709,421	49,709,421	49,709,421	49,709,421	49,555,845	42,119,490
Profit (Rs)	12,550,240,180	2,242,882,898	2,383,411,819	2,213,789,699	2,049,572,861	1,033,808,443	1,474,870,294	922,556,198	209,474,868	19,873,100
Profit (\$)	147,130,600	26,294,055	27,941,522	25,952,986	24,027,818	12,119,677	17,290,390	10,815,430	2,455,743	232,979
Exchange Rate (Rs/\$) as on 30th June		121.40	104.75	104.30	101.50	98.55	98.60	94.00	85.85	85.30
Return on Equity % (\$)	36.94%	52.90%	56.21%	52.21%	48.34%	24.38%	34.78%	21.76%	4.96%	0.55%
Exchange Rate (Rs/\$) as per NEPRA		85.30	85.30	85.30	85.30	85.30	85.30	85.30	85.30	85.30

Return at 15% guaranteed in \$	65,946,192	7,456,413	7,456,413	7,456,413	7,456,413	7,456,413	7,456,413	7,456,413	7,433,377	6,317,924
Excess Return in \$	81,184,408	18,837,642	20,485,109	18,496,573	16,571,405	4,663,264	9,833,977	3,359,017	(4,977,634)	(6,084,945)

Guaranteed Return in Rs	5,625,210,156	636,032,036	636,032,036	636,032,036	636,032,036	636,032,036	636,032,036	636,032,036	634,067,033	538,918,875
Excess Return in Rs	6,925,030,024	1,606,850,863	1,747,379,784	1,577,757,664	1,413,540,826	397,776,408	838,838,259	286,524,163	(424,592,165)	(519,045,775)

Financial Analysis of Atlas Power Limited

Based on data from Audited Financials of the Company from the year 2010-2018

Note: IPPs are exempt from corporate tax.

Data / Ratio	Cumulative to Date	2018	2017	2016	2015	2014	2013	2012	2011	2010
Debt (Rs)		3,207,474,000	3,600,598,000	6,150,816,000	7,407,231,000	8,911,949,000	10,201,040,000	11,305,398,000	12,251,520,000	13,885,203,000
Debt (\$)		37,602,274	42,210,996	72,108,042	86,837,409	104,477,714	119,590,152	132,536,905	142,708,445	162,780,809
D/E Ratio		40:60	43:57	56:44	61:39	65:35	68:32	70:30	72:28	75:25
Equity (Rs)		4,740,000,000	4,740,000,000	4,740,000,000	4,740,000,000	4,740,000,000	4,740,000,000	4,740,000,000	4,740,000,000	4,740,000,000
Equity (\$)		55,568,581	55,568,581	55,568,581	55,568,581	55,568,581	55,568,581	55,568,581	55,568,581	55,568,581
Profit (Rs)	19,283,345,000	3,170,772,000	3,307,416,000	3,143,986,000	2,289,610,000	2,183,426,000	1,836,160,000	1,442,520,000	1,366,778,000	542,477,000
Profit (\$)	226,065,006	37,172,005	38,776,272	36,857,984	26,841,852	25,597,022	21,525,909	16,911,137	16,023,189	6,359,637
Exchange Rate (Rs/\$) as on 30th June		121.40	104.75	104.30	101.50	98.55	98.60	94.00	85.85	85.30
Return on Equity % (\$)	61.47%	66.89%	69.78%	66.33%	48.30%	46.06%	38.74%	30.43%	28.83%	11.44%
Exchange Rate (Rs/\$) as per NEPRA		85.30	85.30	85.30	85.30	85.30	85.30	85.30	85.30	85.30

Return at 15% guaranteed in \$	75,017,585	8,335,287	8,335,287	8,335,287	8,335,287	8,335,287	8,335,287	8,335,287	8,335,287	8,335,287
Excess Return in \$	151,047,421	28,836,717	30,440,985	28,522,696	18,506,565	17,261,735	13,190,621	8,575,850	7,687,902	(1,975,651)

Guaranteed Return in Rs	6,399,000,000	711,000,000	711,000,000	711,000,000	711,000,000	711,000,000	711,000,000	711,000,000	711,000,000	711,000,000
Excess Return in Rs	12,884,345,000	2,459,772,000	2,596,616,000	2,432,986,000	1,578,610,000	1,472,426,000	1,125,160,000	731,520,000	655,778,000	(168,523,000)

Financial Analysis of Liberty Power Limited

Based on data from Audited Financials of the Company from the year 2010-2018

Note: IPPs are exempt from corporate tax.

Data / Ratio	Cumulative to Date	2018	2017	2016	2015	2014	2013	2012	2011	2010
Debt (Rs)		4,548,453,000	6,639,225,000	8,418,545,000	9,932,675,000	11,217,535,000	12,314,841,000	13,248,686,000	14,043,518,000	
Debt (\$)		53,323,013	77,833,822	98,693,376	116,444,021	131,506,858	144,370,938	155,318,710	163,582,038	-
D/E Ratio		47:53	57:43	63:37	66:34	69:31	71:29	72:28	73:27	
Equity (Rs)		5,045,841,000	5,045,841,000	5,045,841,000	5,045,841,000	5,045,841,000	5,045,841,000	5,045,841,000	5,045,841,000	-
Equity (\$)		59,154,056	59,154,056	59,154,056	59,154,056	59,154,056	59,154,056	59,154,056	59,154,056	-
Profit (Rs)	23,866,414,000	3,543,222,000	3,833,565,000	3,490,023,000	3,680,083,000	3,204,400,000	2,960,709,000	2,156,926,000	997,486,000	
Profit (\$)	279,793,834	41,538,359	44,942,145	40,914,689	43,142,825	37,566,237	34,709,367	25,286,354	11,693,857	-
Exchange Rate (Rs/\$) as on 30th June		121.40	104.75	104.30	101.50	98.55	98.60	94.00	85.85	85.30
Return on Equity % (\$)	72.69%	70.22%	75.97%	69.17%	72.93%	63.51%	58.68%	42.75%	19.77%	0.00%
Exchange Rate (Rs/\$) as per NEPIRA		85.30	85.30	85.30	85.30	85.30	85.30	85.30	85.30	85.30
Return at 15% guaranteed in \$	70,984,868	8,873,108	8,873,108	8,873,108	8,873,108	8,873,108	8,873,108	8,873,108	8,873,108	-
Excess Return in \$	208,808,966	32,665,250	36,069,037	32,041,581	34,269,717	28,693,128	25,836,258	16,413,246	2,820,749	-
Guaranteed Return in Rs	6,055,009,200	756,876,150	756,876,150	756,876,150	756,876,150	756,876,150	756,876,150	756,876,150	756,876,150	-
Excess Return in Rs	17,811,404,800	2,786,345,850	3,076,688,850	2,733,146,850	2,923,206,850	2,447,523,850	2,203,832,850	1,400,049,850	240,609,850	-

Financial Analysis of Attock Generation Limited

Based on data from Audited Financials of the Company from the year 2010-2018

Note: IPPs are exempt from corporate tax.

Data / Ratio	Cumulative to Date	2018	2017	2016	2015	2014	2013	2012	2011	2010
Debt (Rs)		-	1,218,339,000	2,721,071,000	4,103,382,000	5,355,442,000	6,379,993,000	7,366,536,000	8,144,174,000	8,733,189,000
Debt (\$)		-	14,282,989	31,900,012	48,105,299	62,783,611	74,794,760	86,360,328	94,865,160	102,382,052
D/E Ratio		0:100	33:67	52:48	62:38	68:32	72:28	75:25	76:24	78:22
Equity (Rs)		2,494,319,000	2,494,319,000	2,494,319,000	2,494,319,000	2,494,319,000	2,494,319,000	2,494,319,000	2,494,319,000	2,494,319,000
Equity (\$)		29,241,723	29,241,723	29,241,723	29,241,723	29,241,723	29,241,723	29,241,723	29,241,723	29,241,723
Profit (Rs)	26,522,633,000	2,950,743,000	2,506,584,000	2,432,850,000	2,816,886,000	3,722,615,000	3,705,738,000	3,096,903,000	2,816,973,000	2,473,341,000
Profit (\$)	310,933,564	34,592,532	29,385,510	28,521,102	33,023,283	43,641,442	43,443,587	36,306,014	33,024,302	28,995,791
Exchange Rate (Rs/\$) as on 30th June		121.40	104.75	104.30	101.50	98.55	98.60	94.00	85.85	85.30
Return on Equity % (\$)	103.65%	118.30%	100.49%	97.54%	112.93%	149.24%	148.57%	124.16%	112.94%	99.16%
Exchange Rate (Rs/\$) as per NEPRA		85.30	85.30	85.30	85.30	85.30	85.30	85.30	85.30	85.30

Return at 15% guaranteed in \$	39,476,326	4,386,258	4,386,258	4,386,258	4,386,258	4,386,258	4,386,258	4,386,258	4,386,258	4,386,258
Excess Return in \$	271,457,237	30,206,274	24,999,251	24,134,843	28,637,024	39,255,183	39,057,329	31,919,756	28,638,044	24,609,533

Guaranteed Return in Rs	3,367,330,650	374,147,850	374,147,850	374,147,850	374,147,850	374,147,850	374,147,850	374,147,850	374,147,850	374,147,850
Excess Return in Rs	23,155,302,350	2,576,595,150	2,132,436,150	2,058,702,150	2,442,738,150	3,348,467,150	3,331,590,150	2,722,755,150	2,442,825,150	2,099,193,150

Financial Analysis of HUBCO Narowal Energy Limited

Based on data from Audited Financials of the Company from the year 2017-2018

Note: IPPs are exempt from corporate tax.

Data / Ratio	Cumulative to Date	2018	2017	2016	2015	2014	2013	2012	2011	2010
Debt (Rs)		5,558,788,000	8,490,008,000							
Debt (\$)		65,167,503	99,531,161	-	-	-	-	-	-	-
D/E Ratio		59:41	68:32							
Equity (Rs)		3,921,883,000	3,921,883,000							
Equity (\$)		45,977,526	45,977,526	-	-	-	-	-	-	-
Profit (Rs)	3,668,844,000	2,854,974,000	813,870,000							
Profit (\$)	43,011,067	33,469,801	9,541,266	-	-	-	-	-	-	-
Exchange Rate (Rs/\$) as on 30th June		121.40	104.75	104.30	101.50	98.55	98.60	94.00	85.85	85.30
Return on Equity % (\$)	46.77%	72.80%	20.75%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Exchange Rate (Rs/\$) as per NEPRA		85.30	85.30	85.30	85.30	85.30	85.30	85.30	85.30	85.30

Return at 15% guaranteed in \$	13,793,258	6,896,629	6,896,629	-	-	-	-	-	-	-
Excess Return in \$	29,217,809	26,573,172	2,644,637	-	-	-	-	-	-	-

Guaranteed Return in Rs	1,176,564,900	588,282,450	588,282,450	-	-	-	-	-	-	-
Excess Return in Rs	2,492,279,100	2,266,691,550	225,587,550	-	-	-	-	-	-	-

Financial Analysis of Halmore Power Limited

Based on data from Audited Financials of the Company from the year 2010-2018

Note: IPPs are exempt from corporate tax.

Data / Ratio	Cumulative to Date	2018	2017	2016	2015	2014	2013	2012	2011	2010
Debt (Rs)		3,058,463,494	5,186,484,005	6,992,428,526	8,524,321,853	9,818,966,471	10,919,857,998	13,165,995,719	14,375,451,853	11,555,106,063
Debt (\$)		35,855,375	60,802,861	81,974,543	99,933,433	115,110,979	128,017,093	154,349,305	167,448,478	135,464,315
D/E Ratio		30:70	43:57	50:50	55:45	58:42	61:39	65:35	70:30	75:25
Equity (Rs)		7,016,583,440	7,016,583,440	7,016,583,440	7,016,583,440	7,016,583,440	7,016,583,440	7,016,583,440	6,016,583,440	3,831,719,510
Equity (\$)		82,257,719	82,257,719	82,257,719	82,257,719	82,257,719	82,257,719	82,257,719	70,534,390	44,920,510
Profit (Rs)	5,219,271,656	1,667,559,077	1,007,048,453	1,077,587,605	1,233,652,750	(747,928,842)	591,349,545	434,216,777	(28,543,885)	(15,669,824)
Profit (\$)	61,187,241	19,549,344	11,805,961	12,632,914	14,462,518	(8,768,216)	6,932,586	5,090,466	(334,629)	(183,703)
Exchange Rate (Rs/\$) as on 30th June		121.40	104.75	104.30	101.50	98.55	98.60	94.00	85.85	85.30
Return on Equity % (\$)	15.76%	23.77%	14.35%	15.36%	17.58%	-10.66%	8.43%	6.19%	-0.47%	-0.41%
Exchange Rate (Rs/\$) as per NEPRA		85.30	85.30	85.30	85.30	85.30	85.30	85.30	85.30	85.30

Return at 15% guaranteed in \$	103,688,840	12,338,658	12,338,658	12,338,658	12,338,658	12,338,658	12,338,658	12,338,658	10,580,158	6,738,077
Excess Return in \$	(42,501,599)	7,210,687	(532,697)	294,257	2,123,860	(21,106,874)	(5,406,072)	(7,248,192)	(10,914,788)	(6,921,779)

Guaranteed Return in Rs	8,844,658,055	1,052,487,516	1,052,487,516	1,052,487,516	1,052,487,516	1,052,487,516	1,052,487,516	1,052,487,516	902,487,516	574,757,927
Excess Return in Rs	(3,625,386,399)	615,071,561	(45,439,063)	25,100,089	181,165,234	(1,800,416,358)	(461,137,971)	(618,270,739)	(931,031,401)	(590,427,751)

Financial Analysis of Orient Power Limited (OPL)**Based on data from Audited Financials of the Company from the year 2010-2018****Note: IPPs are exempt from corporate tax.**

Data / Ratio	Cumulative to Date	2018	2017	2016	2015	2014	2013	2012	2011	2010
Debt (Rs)		1,653,779,575	3,102,183,475	4,069,228,000	5,217,860,000	6,226,655,000	7,105,514,000	7,877,757,000	8,824,105,000	8,809,753,255
Debt (\$)		19,387,803	36,367,919	47,704,900	61,170,692	72,997,128	83,300,281	92,353,540	102,785,149	103,279,640
D/E Ratio		28:72	43:57	49:51	56:44	60:40	63:37	65:35	68:32	75:25
Equity (Rs)		4,165,388,000	4,165,388,000	4,165,388,000	4,165,388,000	4,165,388,000	4,165,388,000	4,165,388,000	4,165,388,000	2,994,593,940
Equity (\$)		48,832,216	48,832,216	48,832,216	48,832,216	48,832,216	48,832,216	48,832,216	48,832,216	35,106,611
Profit (Rs)	9,848,918,736	1,718,148,287	1,621,482,558	1,763,240,000	1,674,889,000	1,146,288,000	799,402,000	729,381,000	406,125,000	(10,037,109)
Profit (\$)	115,462,119	20,142,418	19,009,174	20,671,043	19,635,275	13,438,312	9,371,653	8,550,774	4,761,137	(117,668)
Exchange Rate (Rs/\$) as on 30th June		121.40	104.75	104.30	101.50	98.55	98.60	94.00	85.85	85.30
Return on Equity % (\$)	26.26%	41.25%	38.93%	42.33%	40.21%	27.52%	19.19%	17.51%	9.75%	-0.34%
Exchange Rate (Rs/\$) as per NEPRA		85.30	85.30	85.30	85.30	85.30	85.30	85.30	85.30	85.30

Return at 15% guaranteed in \$	63,864,651	7,324,832	7,324,832	7,324,832	7,324,832	7,324,832	7,324,832	7,324,832	7,324,832	5,265,992
Excess Return in \$	51,597,468	12,817,586	11,684,342	13,346,211	12,310,443	6,113,479	2,046,821	1,225,941	(2,563,695)	(5,383,660)

Guaranteed Return in Rs	5,447,654,691	624,808,200	624,808,200	624,808,200	624,808,200	624,808,200	624,808,200	624,808,200	624,808,200	449,189,091
Excess Return in Rs	4,401,264,045	1,093,340,087	996,674,358	1,138,431,800	1,050,080,800	521,479,800	174,593,800	104,572,800	(218,683,200)	(459,226,200)

SECTION-C

OVERPAYMENTS TO IPP'S BASED ON WIND POWER

OVERPAYMENTS-WIND POWER PROJECTS

1. Brief statement of facts

- i. Wind power projects were instrumental in getting high upfront tariff approved at Rs. 15.322/Kwh or 19.39 US Cents levelized and upfront tariff of Rs. 12.706/Kwh or 16.08 US Cents through influence peddling and corruption at a fixed exchange rate of Rs 79 / \$.
- ii. The current world wide Wind power tariffs are as low as 2.6 cents/Kwh, world average tariffs are around 6-7 cents/Kwh, and even in Pakistan Zorlu Enerji Pakistan (Pvt) Ltd wind power plant of 56.4MW capacity completed in 2013 and Foundation Wind-2 Private Limited of 50 MW was completed in 2014, it was awarded a reference tariff for first 10 years at 5.25 cents / Kwh and 6.79 Cents/Kwh respectively. These wind power plant were awarded at cost plus basis.
- iii. The upfront tariffs awarded by NEPRA to other wind power plants completed between 2013- 2017 in Pakistan, averages at 12.0 cents/Kwh.
- iv. The assumed capital cost of these projects is in the range of \$ 1.5-1.8 million/ MW allowed by NEPRA while the installed capital cost of similar projects worldwide average at US \$ 0.8 million and in India it is less than US \$ 0.7 million, this has caused a massive loss to the country.

2. Actions Taken to Verify

- a) All the relevant wind power plant tariffs have been directly taken from NEPRA website tariff determination/ generation section so they are official figures.
- b) International averages and tariffs have been withdrawn from authentic international websites which were counter examined.
- c) NEPRA and AEDB have been asked for the fact that once a tariff for first 10 years of 5.25 cents / Kwh was awarded to one wind plant named Zorlu Enerji Pakistan (Pvt) Ltd, and 6.79 Cents/Kwh to Foundation Wind-2 Private Limited, then why much higher tariffs were awarded to other wind power plants in the same period and even after that.

- d) Expert opinion was sought from renowned energy experts who confirmed that the tariff was overly ambitious and a far better tariff could have been obtained through competitive tariff based bids.
- e) **Latest Tariffs under current Government awarded by Nepra to Western Energy and Master Green Energy is Rs. 5 or 4.34 US cents levelized for 25 years.**

3. India's Wind Power Projects

Total wind energy potential in India has been estimated at over 50,000 MW. India's wind energy sector has seen significant investments spurred by the development potential, availability of wind farm equipment at competitive prices and conducive government policies. Currently more than 70% of the installed generation capacity from renewable sources is accounted by wind power.

India has the 4th largest installed capacity in wind power after China, U.S and Germany. The total installed capacity of wind power in India as on March 2017 is around 32 GW. A recent study by National Institute of Wind Energy (NIWE) has shown wind energy potential of 302 GW at 100 m hub-height in India.

The tariff rates of different states is given as follows:

State	RPS(%) specified	Tariffs fixed by commissions in INR per kWh	Validity of tariff (year)	Charges for captive users
Tamilnadu	14%	3.39 (fixed)	20	10 % (includes 5% for banking if applicable)
Karnataka	10%	3.70	10	2% to 5%
Maharashtra	6%	5.07 (Wind Zone 1)* 4.41 (Wind Zone 2)* 3.75 (Wind Zone 3)* 3.38 (Wind Zone 4)*	13	Actual OA charges
Rajasthan	7.45%	3.83 for Jaipur, Jodhpur and Barmer dist. 4.03 for rest of Rajasthan	20	50% of normal OA charges

Andhra Pradesh	5%	3.50	10	Actual OA charges
Madhya Pradesh	10%	4.35	25	2% plus transmission charge
Kerala	3%	3.14 (fixed)	20	5%
West Bengal	4-6.8%	4.00 (fixed, to be used as a cap)	Flexible	2%
Gujarat	4.5%	3.56	25	4%
Haryana	10%	4.08 (with 1.5 % escalation per year)	5	2%

Source: IWEA

*(Wind Zone 1 - Annual mean WPD of 200-250 w/sqm)

*(Wind Zone 2 - Annual mean WPD of 250-300 w/sqm)

*(Wind Zone 3 - Annual mean WPD of 300-350 w/sqm)

*(Wind Zone 4 - Annual mean WPD > 400 w/sqm)

*The tariffs of Wind Power Plants used in the calculations are retrieved from NEPRA website, Link available: https://www.nepra.org.pk/tariff_wpg.htm

Amount In USD (\$)

Wind Power Projects			
Summary	Payment Already Made	Projected Payment To Be Made Over Project Life	Total Payments (If Contract Not Revised)
Payments as per applicable tariff of the Company	1,768,602,417	6,145,664,286	7,914,266,703
Payments as per Justified tariff	772,675,004	3,359,171,357	4,131,846,361
Total Over Payments over Project Life	995,927,413	2,786,492,929	3,782,420,342

Name of Project	Metro Power Project	
Capacity	50	
Availability	32.49%	
Year of Commissioning	2016	
Exchange Rate	87.75	
Concession Period	20 years	

Amount in US Dollars

Years	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Tariff US Cents (Applicable)	16.87	16.87	17.65	17.65	17.65	17.65	17.65	17.65	17.65	17.65
Units Produced per annum	142,306,200	142,306,200	142,306,200	142,306,200	142,306,200	142,306,200	142,306,200	142,306,200	142,306,200	142,306,200
Billing by the Company	24,006,344	24,006,344	25,117,044	25,117,044	25,117,044	25,117,044	25,117,044	25,117,044	25,117,044	25,117,044
Comparative Tariff Indian Use (Actual)	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00
Justified Billing	9,961,434	9,961,434	9,961,434	9,961,434	9,961,434	9,961,434	9,961,434	9,961,434	9,961,434	9,961,434
Overpayment	14,044,910	14,044,910	15,155,610	15,155,610	15,155,610	15,155,610	15,155,610	15,155,610	15,155,610	15,155,610
Years	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Tariff US Cents (Applicable)	6.98	6.98	6.98	6.98	6.98	6.98	6.98	6.98	6.98	6.98
Units Produced per annum	142,306,200	142,306,200	142,306,200	142,306,200	142,306,200	142,306,200	142,306,200	142,306,200	142,306,200	142,306,200
Billing by the Company	9,930,127	9,930,127	9,930,127	9,930,127	9,930,127	9,930,127	9,930,127	9,930,127	9,930,127	9,930,127
Comparative Tariff Indian Use (Actual)	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Justified Billing	5,692,248	5,692,248	5,692,248	5,692,248	5,692,248	5,692,248	5,692,248	5,692,248	5,692,248	5,692,248
Overpayment	4,237,879	4,237,879	4,237,879	4,237,879	4,237,879	4,237,879	4,237,879	4,237,879	4,237,879	4,237,879
Summary	Payment Already made	Projected Payment to be made over project life	Total Payments (if Contract not revised)							
Payments made on applicable tariff	98,246,777	250,003,532	348,250,310							
Projected Payments on Justified tariff	39,845,736	116,691,084	156,536,820							
Total Over Payments over Project Life	58,401,041	133,312,448	191,713,490							

Notes:

- 1 Tariff are also linked to US & Pakistan CPI and KIBOR so actual payment will be higher.
- 2 No Corporate or Dividend Tax applicable on Wind Power Projects.
- 3 These are must run plants and will have to be paid in full under all circumstances.

Name of Project	Sachal Power Project	
Capacity	50	
Availability	31.50%	
Year of Commissioning	2017	
Exchange Rate	90	
Concession Period	20 years	

Amount in US Dollars

Years	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Tariff US Cents (Applicable)	17.27	17.27	18.15	18.15	18.15	18.17	18.17	18.17	18.17	18.17
Units Produced per annum	137,970,000	137,970,000	137,970,000	137,970,000	137,970,000	137,970,000	137,970,000	137,970,000	137,970,000	137,970,000
Billing by the Company	23,827,419	23,827,419	25,041,555	25,041,555	25,041,555	25,069,149	25,069,149	25,069,149	25,069,149	25,069,149
Comparative Tariff Indian Usc (Actual)	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00
Justified Billing	9,657,900	9,657,900	9,657,900	9,657,900	9,657,900	9,657,900	9,657,900	9,657,900	9,657,900	9,657,900
Overpayment	14,169,519	14,169,519	15,383,655	15,383,655	15,383,655	15,411,249	15,411,249	15,411,249	15,411,249	15,411,249
Years	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
Tariff US Cents (Applicable)	6.95	6.95	6.95	6.95	6.95	6.95	6.95	6.95	6.95	6.95
Units Produced per annum	137,970,000	137,970,000	137,970,000	137,970,000	137,970,000	137,970,000	137,970,000	137,970,000	137,970,000	137,970,000
Billing by the Company	9,586,156	9,586,156	9,586,156	9,586,156	9,586,156	9,586,156	9,586,156	9,586,156	9,586,156	9,586,156
Comparative Tariff Indian Usc (Actual)	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Justified Billing	5,518,800	5,518,800	5,518,800	5,518,800	5,518,800	5,518,800	5,518,800	5,518,800	5,518,800	5,518,800
Overpayment	4,067,356	4,067,356	4,067,356	4,067,356	4,067,356	4,067,356	4,067,356	4,067,356	4,067,356	4,067,356
Summary	Payment Already made	Projected Payment to be made over project life	Total Payments (if Contract not revised)							
Payments made on applicable tariff	72,696,393	271,290,411	343,986,804							
Projected Payments on Justified tariff	28,973,700	122,793,300	151,767,000							
Total Over Payments over Project Life	43,722,693	148,497,111	192,219,804							

Notes:

- 1 Tariff are also linked to US & Pakistan CPI and KIBOR so actual payment will be higher.
- 2 No Corporate or Dividend Tax applicable on Wind Power Projects.
- 3 These are must run plants and will have to be paid in full under all circumstances.

Name of Project	Master Power Project	
Capacity	52.8	
Availability	32.79%	
Year of Commissioning	2017	
Exchange Rate	87.8	
Concession Period	20 years	

Amount in US Dollars

Years	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Tariff US Cents (Applicable)	17.17	16.77	17.65	17.54	17.54	17.54	17.54	17.54	17.54	17.54
Units Produced per annum	151,662,931	151,662,931	151,662,931	151,662,931	151,662,931	151,662,931	151,662,931	151,662,931	151,662,931	151,662,931
Billing by the Company	26,037,492	25,432,357	26,768,507	26,601,678	26,601,678	26,601,678	26,601,678	26,601,678	26,601,678	26,601,678
Comparative Tariff Indian Usc (Actual)	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00
Justified Billing	10,616,405	10,616,405	10,616,405	10,616,405	10,616,405	10,616,405	10,616,405	10,616,405	10,616,405	10,616,405
Overpayment	15,421,087	14,815,952	16,152,102	15,985,273	15,985,273	15,985,273	15,985,273	15,985,273	15,985,273	15,985,273
	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
Tariff US Cents (Applicable)	7.14	7.14	7.14	7.14	7.14	7.14	7.14	7.14	7.14	7.14
Units Produced per annum	151,662,931	151,662,931	151,662,931	151,662,931	151,662,931	151,662,931	151,662,931	151,662,931	151,662,931	151,662,931
Billing by the Company	10,822,667	10,822,667	10,822,667	10,822,667	10,822,667	10,822,667	10,822,667	10,822,667	10,822,667	10,822,667
Comparative Tariff Indian Usc (Actual)	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Justified Billing	6,066,517	6,066,517	6,066,517	6,066,517	6,066,517	6,066,517	6,066,517	6,066,517	6,066,517	6,066,517
Overpayment	4,756,150	4,756,150	4,756,150	4,756,150	4,756,150	4,756,150	4,756,150	4,756,150	4,756,150	4,756,150
Summary	Payment Already made	Projected Payment to be made over project life	Total Payments (if Contract not revised)							
Payments made on applicable tariff	78,238,356	294,438,415	372,676,771							
Projected Payments on Justified tariff	31,849,216	134,980,009	166,829,224							
Total Over Payments over Project Life	46,389,141	159,458,406	205,847,547							

Notes:

- 1 Tariff are also linked to US & Pakistan CPI and KIBOR so actual payment will be higher.
- 2 No Corporate or Dividend Tax applicable on Wind Power Projects.
- 3 These are must run plants and will have to be paid in full under all circumstances.

Name of Project	Tapal Power Project	
Capacity	30	
Availability	31.00%	
Year of Commissioning	2017	
Exchange Rate	97.6	
Concession Period	20 years	

Amount in US Dollars

Years	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Tariff US Cents (Applicable)	20.22	20.22	20.22	20.22	20.22	20.22	20.22	20.22	20.22	20.22
Units Produced per annum	81,468,000	81,468,000	81,468,000	81,468,000	81,468,000	81,468,000	81,468,000	81,468,000	81,468,000	81,468,000
Billing by the Company	16,472,015	16,472,015	16,472,015	16,472,015	16,472,015	16,472,015	16,472,015	16,472,015	16,472,015	16,472,015
Comparative Tariff Indian Usc (Actual)	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00
Justified Billing	5,702,760	5,702,760	5,702,760	5,702,760	5,702,760	5,702,760	5,702,760	5,702,760	5,702,760	5,702,760
Overpayment	10,769,255	10,769,255	10,769,255	10,769,255	10,769,255	10,769,255	10,769,255	10,769,255	10,769,255	10,769,255
	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
Tariff US Cents (Applicable)	7.55	7.55	7.55	7.55	7.55	7.55	7.55	7.55	7.55	7.55
Units Produced per annum	81,468,000	81,468,000	81,468,000	81,468,000	81,468,000	81,468,000	81,468,000	81,468,000	81,468,000	81,468,000
Billing by the Company	6,147,575	6,147,575	6,147,575	6,147,575	6,147,575	6,147,575	6,147,575	6,147,575	6,147,575	6,147,575
Comparative Tariff Indian Usc (Actual)	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Justified Billing	3,258,720	3,258,720	3,258,720	3,258,720	3,258,720	3,258,720	3,258,720	3,258,720	3,258,720	3,258,720
Overpayment	2,888,855	2,888,855	2,888,855	2,888,855	2,888,855	2,888,855	2,888,855	2,888,855	2,888,855	2,888,855
Summary	Payment Already made	Projected Payment to be made over project life	Total Payments (if Contract not revised)							
Payments made on applicable tariff	49,416,045	176,779,857	226,195,902							
Projected Payments on Justified tariff	17,108,280	72,506,520	89,614,800							
Total Over Payments over Project Life	32,307,765	104,273,337	136,581,102							

Notes:

- 1 Tariff are also linked to US & Pakistan CPI and KIBOR so actual payment will be higher.
- 2 No Corporate or Dividend Tax applicable on Wind Power Projects.
- 3 These are must run plants and will have to be paid in full under all circumstances.

Name of Project	United Power Project	
Capacity	99	
Availability	31.00%	
Year of Commissioning	2017	
Exchange Rate	97.6	
Concession Period	20 years	

Amount in US Dollars

Years	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Tariff US Cents (Applicable)	15.94	15.94	15.94	15.94	15.94	15.94	15.94	15.94	15.94	15.94
Units Produced per annum	268,844,400	268,844,400	268,844,400	268,844,400	268,844,400	268,844,400	268,844,400	268,844,400	268,844,400	268,844,400
Billing by the Company	42,853,797	42,853,797	42,853,797	42,853,797	42,853,797	42,853,797	42,853,797	42,853,797	42,853,797	42,853,797
Comparative Tariff Indian Usc (Actual)	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00
Justified Billing	18,819,108	18,819,108	18,819,108	18,819,108	18,819,108	18,819,108	18,819,108	18,819,108	18,819,108	18,819,108
Overpayment	24,034,689	24,034,689	24,034,689	24,034,689	24,034,689	24,034,689	24,034,689	24,034,689	24,034,689	24,034,689
	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
Tariff US Cents (Applicable)	7.25	7.25	7.25	7.25	7.25	7.25	7.25	7.25	7.25	7.25
Units Produced per annum	268,844,400	268,844,400	268,844,400	268,844,400	268,844,400	268,844,400	268,844,400	268,844,400	268,844,400	268,844,400
Billing by the Company	19,491,219	19,491,219	19,491,219	19,491,219	19,491,219	19,491,219	19,491,219	19,491,219	19,491,219	19,491,219
Comparative Tariff Indian Usc (Actual)	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Justified Billing	10,753,776	10,753,776	10,753,776	10,753,776	10,753,776	10,753,776	10,753,776	10,753,776	10,753,776	10,753,776
Overpayment	8,737,443	8,737,443	8,737,443	8,737,443	8,737,443	8,737,443	8,737,443	8,737,443	8,737,443	8,737,443
Summary	Payment Already made	Projected Payment to be made over project life	Total Payments (if Contract not revised)							
Payments made on applicable tariff	128,561,392	494,888,772	623,450,164							
Projected Payments on Justified tariff	56,457,324	239,271,516	295,728,840							
Total Over Payments over Project Life	72,104,068	255,617,256	327,721,324							

Notes:

- 1 Tariff are also linked to US & Pakistan CPI and KIBOR so actual payment will be higher.
- 2 No Corporate or Dividend Tax applicable on Wind Power Projects.
- 3 These are must run plants and will have to be paid in full under all circumstances.

Name of Project	Three Gorges Third Power Project	
Capacity	49.5	Amount in US Dollars
Availability	35.00%	
Year of Commissioning	2018	
Exchange Rate	101.5	
Concession Period	20 years	

Years	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Tariff US Cents (Applicable)	12.29	12.29	12.29	12.29	12.29	12.29	12.29	12.29	12.29	12.29
Units Produced per annum	151,767,000	151,767,000	151,767,000	151,767,000	151,767,000	151,767,000	151,767,000	151,767,000	151,767,000	151,767,000
Billing by the Company	18,657,780	18,657,780	18,657,780	18,657,780	18,657,780	18,657,780	18,657,780	18,657,780	18,657,780	18,657,780
Comparative Tariff Indian Use (Actual)	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00
Justified Billing	10,623,690	10,623,690	10,623,690	10,623,690	10,623,690	10,623,690	10,623,690	10,623,690	10,623,690	10,623,690
Overpayment	8,034,090	8,034,090	8,034,090	8,034,090	8,034,090	8,034,090	8,034,090	8,034,090	8,034,090	8,034,090
Years	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
Tariff US Cents (Applicable)	5.66	5.66	5.66	5.66	5.66	5.66	5.66	5.66	5.66	5.66
Units Produced per annum	151,767,000	151,767,000	151,767,000	151,767,000	151,767,000	151,767,000	151,767,000	151,767,000	151,767,000	151,767,000
Billing by the Company	8,590,012	8,590,012	8,590,012	8,590,012	8,590,012	8,590,012	8,590,012	8,590,012	8,590,012	8,590,012
Comparative Tariff Indian Use (Actual)	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Justified Billing	6,070,680	6,070,680	6,070,680	6,070,680	6,070,680	6,070,680	6,070,680	6,070,680	6,070,680	6,070,680
Overpayment	2,519,332	2,519,332	2,519,332	2,519,332	2,519,332	2,519,332	2,519,332	2,519,332	2,519,332	2,519,332
Summary	Payment Already made	Projected Payment to be made over project life	Total Payments (if Contract not revised)							
Payments made on applicable tariff	37,315,559	235,162,359	272,477,919							
Projected Payments on Justified tariff	21,247,380	145,696,320	166,943,700							
Total Over Payments over Project Life	16,068,179	89,466,039	105,534,219							

Notes:

- 1 Tariff are also linked to US & Pakistan CPI and KIBOR so actual payment will be higher.
- 2 No Corporate or Dividend Tax applicable on Wind Power Projects.
- 3 These are must run plants and will have to be paid in full under all circumstances.

Name of Project	Three Gorges Second Power Project	
Capacity	49.5	Amount in US Dollars
Availability	35.00%	
Year of Commissioning	2018	
Exchange Rate	101.5	
Concession Period	20 years	

Years	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Tariff US Cents (Applicable)	12.29	12.29	12.29	12.29	12.29	12.29	12.29	12.29	12.29	12.29
Units Produced per annum	151,767,000	151,767,000	151,767,000	151,767,000	151,767,000	151,767,000	151,767,000	151,767,000	151,767,000	151,767,000
Billing by the Company	18,657,780	18,657,780	18,657,780	18,657,780	18,657,780	18,657,780	18,657,780	18,657,780	18,657,780	18,657,780
Comparative Tariff Indian Usc (Actual)	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00
Justified Billing	10,623,690	10,623,690	10,623,690	10,623,690	10,623,690	10,623,690	10,623,690	10,623,690	10,623,690	10,623,690
Overpayment	8,034,090	8,034,090	8,034,090	8,034,090	8,034,090	8,034,090	8,034,090	8,034,090	8,034,090	8,034,090
Years	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
Tariff US Cents (Applicable)	5.66	5.66	5.66	5.66	5.66	5.66	5.66	5.66	5.66	5.66
Units Produced per annum	151,767,000	151,767,000	151,767,000	151,767,000	151,767,000	151,767,000	151,767,000	151,767,000	151,767,000	151,767,000
Billing by the Company	8,590,012	8,590,012	8,590,012	8,590,012	8,590,012	8,590,012	8,590,012	8,590,012	8,590,012	8,590,012
Comparative Tariff Indian Usc (Actual)	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Justified Billing	6,070,680	6,070,680	6,070,680	6,070,680	6,070,680	6,070,680	6,070,680	6,070,680	6,070,680	6,070,680
Overpayment	2,519,332	2,519,332	2,519,332	2,519,332	2,519,332	2,519,332	2,519,332	2,519,332	2,519,332	2,519,332
Summary	Payment Already made	Projected Payment to be made over project life	Total Payments (if Contract not revised)							
	37,315,559	235,162,359	272,477,919							
	21,247,380	145,696,320	166,943,700							
	16,068,179	89,466,039	105,534,219							

Notes:

- 1 Tariff are also linked to US & Pakistan CPI and KIBOR so actual payment will be higher.
- 2 No Corporate or Dividend Tax applicable on Wind Power Projects.
- 3 These are must run plants and will have to be paid in full under all circumstances.

Name of Project	TriconBoston Consulting-A Power	
Capacity	49.6	Amount in US Dollars
Availability	35.00%	
Year of Commissioning	2018	
Exchange Rate	101.5	
Concession Period	20 years	

Years	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Tariff US Cents (Applicable)	12.29	12.29	12.29	12.29	12.29	12.29	12.29	12.29	12.29	12.29
Units Produced per annum	152,073,600	152,073,600	152,073,600	152,073,600	152,073,600	152,073,600	152,073,600	152,073,600	152,073,600	152,073,600
Billing by the Company	18,695,472	18,695,472	18,695,472	18,695,472	18,695,472	18,695,472	18,695,472	18,695,472	18,695,472	18,695,472
Comparative Tariff Indian Use (Actual)	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00
Justified Billing	10,645,152	10,645,152	10,645,152	10,645,152	10,645,152	10,645,152	10,645,152	10,645,152	10,645,152	10,645,152
Overpayment	8,050,320	8,050,320	8,050,320	8,050,320	8,050,320	8,050,320	8,050,320	8,050,320	8,050,320	8,050,320
	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
Tariff US Cents (Applicable)	5.66	5.66	5.66	5.66	5.66	5.66	5.66	5.66	5.66	5.66
Units Produced per annum	152,073,600	152,073,600	152,073,600	152,073,600	152,073,600	152,073,600	152,073,600	152,073,600	152,073,600	152,073,600
Billing by the Company	8,607,366	8,607,366	8,607,366	8,607,366	8,607,366	8,607,366	8,607,366	8,607,366	8,607,366	8,607,366
Comparative Tariff Indian Use (Actual)	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Justified Billing	6,082,944	6,082,944	6,082,944	6,082,944	6,082,944	6,082,944	6,082,944	6,082,944	6,082,944	6,082,944
Overpayment	2,524,422	2,524,422	2,524,422	2,524,422	2,524,422	2,524,422	2,524,422	2,524,422	2,524,422	2,524,422
Summary	Payment Already made	Projected Payment to be made over project life	Total Payments (if Contract not revised)							
Payments made on applicable tariff	37,390,944	235,637,435	273,028,379							
Projected Payments on Justified tariff	21,290,304	145,990,656	167,280,960							
Total Over Payments over Project Life	16,100,640	89,646,779	105,747,419							

Notes:

- 1 Tariff are also linked to US & Pakistan CPI and KIBOR so actual payment will be higher.
- 2 No Corporate or Dividend Tax applicable on Wind Power Projects.
- 3 These are must run plants and will have to be paid in full under all circumstances.

TriconBoston Consulting-B Power Project		
Name of Project		
Capacity	49.6	Amount in US Dollars
Availability	35.00%	
Year of Commissioning	2018	
Exchange Rate	101.5	
Concession Period	20 years	

Years	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Tariff US Cents (Applicable)	12.29	12.29	12.29	12.29	12.29	12.29	12.29	12.29	12.29	12.29
Units Produced per annum	152,073,600	152,073,600	152,073,600	152,073,600	152,073,600	152,073,600	152,073,600	152,073,600	152,073,600	152,073,600
Billing by the Company	18,695,472	18,695,472	18,695,472	18,695,472	18,695,472	18,695,472	18,695,472	18,695,472	18,695,472	18,695,472
Comparative Tariff Indian Use (Actual)	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00
Justified Billing	10,645,152	10,645,152	10,645,152	10,645,152	10,645,152	10,645,152	10,645,152	10,645,152	10,645,152	10,645,152
Overpayment	8,050,320	8,050,320	8,050,320	8,050,320	8,050,320	8,050,320	8,050,320	8,050,320	8,050,320	8,050,320
	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
Tariff US Cents (Applicable)	5.66	5.66	5.66	5.66	5.66	5.66	5.66	5.66	5.66	5.66
Units Produced per annum	152,073,600	152,073,600	152,073,600	152,073,600	152,073,600	152,073,600	152,073,600	152,073,600	152,073,600	152,073,600
Billing by the Company	8,607,366	8,607,366	8,607,366	8,607,366	8,607,366	8,607,366	8,607,366	8,607,366	8,607,366	8,607,366
Comparative Tariff Indian Use (Actual)	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Justified Billing	6,082,944	6,082,944	6,082,944	6,082,944	6,082,944	6,082,944	6,082,944	6,082,944	6,082,944	6,082,944
Overpayment	2,524,422	2,524,422	2,524,422	2,524,422	2,524,422	2,524,422	2,524,422	2,524,422	2,524,422	2,524,422
Summary	Payment Already made	Projected Payment to be made over project life	Total Payments (if Contract not revised)							
Payments made on applicable tariff	37,390,944	235,637,435	273,028,379							
Projected Payments on Justified tariff	21,290,304	145,990,656	167,280,960							
Total Over Payments over Project Life	16,100,640	89,646,779	105,747,419							

Notes:

- 1 Tariff are also linked to US & Pakistan CPI and KIBOR so actual payment will be higher.
- 2 No Corporate or Dividend Tax applicable on Wind Power Projects.
- 3 These are must run plants and will have to be paid in full under all circumstances.

TriconBoston Consulting-C Power Project		
Name of Project		
Capacity	49.6	Amount in US Dollars
Availability	35.00%	
Year of Commissioning	2018	
Exchange Rate	101.5	
Concession Period	20 years	

Years	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Tariff US Cents (Applicable)	12.29	12.29	12.29	12.29	12.29	12.29	12.29	12.29	12.29	12.29
Units Produced per annum	152,073,600	152,073,600	152,073,600	152,073,600	152,073,600	152,073,600	152,073,600	152,073,600	152,073,600	152,073,600
Billing by the Company	18,695,472	18,695,472	18,695,472	18,695,472	18,695,472	18,695,472	18,695,472	18,695,472	18,695,472	18,695,472
Comparative Tariff Indian Use (Actual)	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00
Justified Billing	10,645,152	10,645,152	10,645,152	10,645,152	10,645,152	10,645,152	10,645,152	10,645,152	10,645,152	10,645,152
Overpayment	8,050,320	8,050,320	8,050,320	8,050,320	8,050,320	8,050,320	8,050,320	8,050,320	8,050,320	8,050,320
	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
Tariff US Cents (Applicable)	5.66	5.66	5.66	5.66	5.66	5.66	5.66	5.66	5.66	5.66
Units Produced per annum	152,073,600	152,073,600	152,073,600	152,073,600	152,073,600	152,073,600	152,073,600	152,073,600	152,073,600	152,073,600
Billing by the Company	8,607,366	8,607,366	8,607,366	8,607,366	8,607,366	8,607,366	8,607,366	8,607,366	8,607,366	8,607,366
Comparative Tariff Indian Use (Actual)	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Justified Billing	6,082,944	6,082,944	6,082,944	6,082,944	6,082,944	6,082,944	6,082,944	6,082,944	6,082,944	6,082,944
Overpayment	2,524,422	2,524,422	2,524,422	2,524,422	2,524,422	2,524,422	2,524,422	2,524,422	2,524,422	2,524,422
Summary	Payment Already made	Projected Payment to be made over project life	Total Payments (if Contract not revised)							
Payments made on applicable tariff	37,390,944	235,637,435	273,028,379							
Projected Payments on Justified tariff	21,290,304	145,990,656	167,280,960							
Total Over Payments over Project Life	16,100,640	89,646,779	105,747,419							

Notes:

- 1 Tariff are also linked to US & Pakistan CPI and KIBOR so actual payment will be higher.
- 2 No Corporate or Dividend Tax applicable on Wind Power Projects.
- 3 These are must run plants and will have to be paid in full under all circumstances.

Jhimpir Power Project		
Name of Project		
Capacity	50	Amount in US Dollars
Availability	31.00%	
Year of Commissioning	2018	
Exchange Rate	97.6	
Concession Period	20 years	

Years	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Tariff US Cents (Applicable)	15.94	15.94	15.94	15.94	15.94	15.94	15.94	15.94	15.94	15.94
Units Produced per annum	135,780,000	135,780,000	135,780,000	135,780,000	135,780,000	135,780,000	135,780,000	135,780,000	135,780,000	135,780,000
Billing by the Company	21,643,332	21,643,332	21,643,332	21,643,332	21,643,332	21,643,332	21,643,332	21,643,332	21,643,332	21,643,332
Comparative Tariff Indian Usc (Actual)	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00
Justified Billing	9,504,600	9,504,600	9,504,600	9,504,600	9,504,600	9,504,600	9,504,600	9,504,600	9,504,600	9,504,600
Overpayment	12,138,732	12,138,732	12,138,732	12,138,732	12,138,732	12,138,732	12,138,732	12,138,732	12,138,732	12,138,732
Years	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
Tariff US Cents (Applicable)	7.25	7.25	7.25	7.25	7.25	7.25	7.25	7.25	7.25	7.25
Units Produced per annum	135,780,000	135,780,000	135,780,000	135,780,000	135,780,000	135,780,000	135,780,000	135,780,000	135,780,000	135,780,000
Billing by the Company	9,844,050	9,844,050	9,844,050	9,844,050	9,844,050	9,844,050	9,844,050	9,844,050	9,844,050	9,844,050
Comparative Tariff Indian Usc (Actual)	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Justified Billing	5,431,200	5,431,200	5,431,200	5,431,200	5,431,200	5,431,200	5,431,200	5,431,200	5,431,200	5,431,200
Overpayment	4,412,850	4,412,850	4,412,850	4,412,850	4,412,850	4,412,850	4,412,850	4,412,850	4,412,850	4,412,850
Summary	Payment Already made	Projected Payment to be made over project life	Total Payments (if Contract not revised)							
Payments made on applicable tariff	43,286,664	271,587,156	314,873,820							
Projected Payments on Justified tariff	19,009,200	130,348,800	149,358,000							
Total Over Payments over Project Life	24,277,464	141,238,356	165,515,820							

Notes:

- 1 Tariff are also linked to US & Pakistan CPI and KIBOR so actual payment will be higher.
- 2 No Corporate or Dividend Tax applicable on Wind Power Projects.
- 3 These are must run plants and will have to be paid in full under all circumstances.

Dawood Power Project		
Name of Project		
Capacity	49.5	Amount in US Dollars
Availability	32.70%	
Year of Commissioning	2017	
Exchange Rate	79.79	
Concession Period	20 years	

Years	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Tariff US Cents (Applicable)	14.57	14.57	14.57	14.57	14.57	14.78	14.78	14.78	14.78	14.78
Units Produced per annum	141,793,740	141,793,740	141,793,740	141,793,740	141,793,740	141,793,740	141,793,740	141,793,740	141,793,740	141,793,740
Billing by the Company	20,657,930	20,657,930	20,657,930	20,657,930	20,657,930	20,955,697	20,955,697	20,955,697	20,955,697	20,955,697
Comparative Tariff Indian Usc (Actual)	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00
Justified Billing	9,925,562	9,925,562	9,925,562	9,925,562	9,925,562	9,925,562	9,925,562	9,925,562	9,925,562	9,925,562
Overpayment	10,732,368	10,732,368	10,732,368	10,732,368	10,732,368	11,030,135	11,030,135	11,030,135	11,030,135	11,030,135
	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
Tariff US Cents (Applicable)	4.68	4.68	4.68	4.68	4.68	4.68	4.68	4.68	4.68	4.68
Units Produced per annum	141,793,740	141,793,740	141,793,740	141,793,740	141,793,740	141,793,740	141,793,740	141,793,740	141,793,740	141,793,740
Billing by the Company	6,631,693	6,631,693	6,631,693	6,631,693	6,631,693	6,631,693	6,631,693	6,631,693	6,631,693	6,631,693
Comparative Tariff Indian Usc (Actual)	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Justified Billing	5,671,750	5,671,750	5,671,750	5,671,750	5,671,750	5,671,750	5,671,750	5,671,750	5,671,750	5,671,750
Overpayment	959,944	959,944	959,944	959,944	959,944	959,944	959,944	959,944	959,944	959,944
Summary	Payment Already made	Projected Payment to be made over project life	Total Payments (if Contract not revised)							
Payments made on applicable tariff	61,973,790	212,411,276	274,385,066							
Projected Payments on Justified tariff	29,776,685	126,196,429	155,973,114							
Total Over Payments over Project Life	32,197,105	86,214,848	118,411,952							

Notes:

- 1 Tariff are also linked to US & Pakistan CPI and KIBOR so actual payment will be higher.
- 2 No Corporate or Dividend Tax applicable on Wind Power Projects.
- 3 These are must run plants and will have to be paid in full under all circumstances.

Name of Project	Gul Ahmed Power Project		Amount in US Dollars
Capacity	50		
Availability	32.17%		
Year of Commissioning	2017		
Exchange Rate	87.75		
Concession Period	20 years		

Years	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Tariff US Cents (Applicable)	16.97	16.97	17.76	17.76	17.76	17.76	17.76	17.76	17.76	17.76
Units Produced per annum	140,904,600	140,904,600	140,904,600	140,904,600	140,904,600	140,904,600	140,904,600	140,904,600	140,904,600	140,904,600
Billing by the Company	23,904,465	23,904,465	25,021,839	25,021,839	25,021,839	25,021,839	25,021,839	25,021,839	25,021,839	25,021,839
Comparative Tariff Indian Usc (Actual)	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00
Justified Billing	9,863,322	9,863,322	9,863,322	9,863,322	9,863,322	9,863,322	9,863,322	9,863,322	9,863,322	9,863,322
Overpayment	14,041,143	14,041,143	15,158,517	15,158,517	15,158,517	15,158,517	15,158,517	15,158,517	15,158,517	15,158,517
	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
Tariff US Cents (Applicable)	7.55	7.55	7.55	7.55	7.55	7.55	7.55	7.55	7.55	7.55
Units Produced per annum	140,904,600	140,904,600	140,904,600	140,904,600	140,904,600	140,904,600	140,904,600	140,904,600	140,904,600	140,904,600
Billing by the Company	10,632,661	10,632,661	10,632,661	10,632,661	10,632,661	10,632,661	10,632,661	10,632,661	10,632,661	10,632,661
Comparative Tariff Indian Usc (Actual)	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Justified Billing	5,636,184	5,636,184	5,636,184	5,636,184	5,636,184	5,636,184	5,636,184	5,636,184	5,636,184	5,636,184
Overpayment	4,996,477	4,996,477	4,996,477	4,996,477	4,996,477	4,996,477	4,996,477	4,996,477	4,996,477	4,996,477
Summary	Payment Already made	Projected Payment to be made over project life	Total Payments (if Contract not revised)							
Payments made on applicable tariff	72,830,770	281,479,483	354,310,253							
Projected Payments on Justified tariff	29,589,966	125,405,094	154,995,060							
Total Over Payments over Project Life	43,240,804	156,074,389	199,315,193							

Notes:

- 1 Tariff are also linked to US & Pakistan CPI and KIBOR so actual payment will be higher.
- 2 No Corporate or Dividend Tax applicable on Wind Power Projects.
- 3 These are must run plants and will have to be paid in full under all circumstances.

Name of Project	Tenega Generasi Power Project	
Capacity	49.5	Amount in US Dollars
Availability	33.90%	
Year of Commissioning	2017	
Exchange Rate	85	
Concession Period	20 years	

Years	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Tariff US Cents (Applicable)	15.60	15.60	16.46	16.46	16.46	16.46	16.46	16.46	16.46	16.46
Units Produced per annum	146,997,180	146,997,180	146,997,180	146,997,180	146,997,180	146,997,180	146,997,180	146,997,180	146,997,180	146,997,180
Billing by the Company	22,924,210	22,924,210	24,194,266	24,194,266	24,194,266	24,194,266	24,194,266	24,194,266	24,194,266	24,194,266
Comparative Tariff Trans Atlantic Use (Actual)	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00
Justified Billing	10,289,803	10,289,803	10,289,803	10,289,803	10,289,803	10,289,803	10,289,803	10,289,803	10,289,803	10,289,803
Overpayment	12,634,408	12,634,408	13,904,463	13,904,463	13,904,463	13,904,463	13,904,463	13,904,463	13,904,463	13,904,463
	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
Tariff US Cents (Applicable)	7.55	7.55	7.55	7.55	7.55	7.55	7.55	7.55	7.55	7.55
Units Produced per annum	146,997,180	146,997,180	146,997,180	146,997,180	146,997,180	146,997,180	146,997,180	146,997,180	146,997,180	146,997,180
Billing by the Company	11,092,407	11,092,407	11,092,407	11,092,407	11,092,407	11,092,407	11,092,407	11,092,407	11,092,407	11,092,407
Comparative Tariff Trans Atlantic Use (Actual)	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Justified Billing	5,879,887	5,879,887	5,879,887	5,879,887	5,879,887	5,879,887	5,879,887	5,879,887	5,879,887	5,879,887
Overpayment	5,212,520	5,212,520	5,212,520	5,212,520	5,212,520	5,212,520	5,212,520	5,212,520	5,212,520	5,212,520
Summary	Payment Already made	Projected Payment to be made over project life	Total Payments (if Contract not revised)							
Payments made on applicable tariff	70,042,686	280,283,933	350,326,619							
Projected Payments on Justified tariff	30,869,408	130,827,490	161,696,898							
Total Over Payments over Project Life	39,173,278	149,456,443	188,629,721							

Notes:

- 1 Tariff are also linked to US & Pakistan CPI and KIBOR so actual payment will be higher.
- 2 No Corporate or Dividend Tax applicable on Wind Power Projects.
- 3 These are must run plants and will have to be paid in full under all circumstances.

Hawa Energy Power Project		
Name of Project		
Capacity	49.6	Amount in US Dollars
Availability	31.00%	
Year of Commissioning	2018	
Exchange Rate	97.6	
Concession Period	20 years	

Years	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Tariff US Cents (Applicable)	15.94	15.94	15.94	15.94	15.94	15.94	15.94	15.94	15.94	15.94
Units Produced per annum	134,693,760	134,693,760	134,693,760	134,693,760	134,693,760	134,693,760	134,693,760	134,693,760	134,693,760	134,693,760
Billing by the Company	21,470,185	21,470,185	21,470,185	21,470,185	21,470,185	21,470,185	21,470,185	21,470,185	21,470,185	21,470,185
Comparative Tariff Trans Atlantic Usc (Actual)	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00
Justified Billing	9,428,563	9,428,563	9,428,563	9,428,563	9,428,563	9,428,563	9,428,563	9,428,563	9,428,563	9,428,563
Overpayment	12,041,622	12,041,622	12,041,622	12,041,622	12,041,622	12,041,622	12,041,622	12,041,622	12,041,622	12,041,622
	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
Tariff US Cents (Applicable)	7.25	7.25	7.25	7.25	7.25	7.25	7.25	7.25	7.25	7.25
Units Produced per annum	134,693,760	134,693,760	134,693,760	134,693,760	134,693,760	134,693,760	134,693,760	134,693,760	134,693,760	134,693,760
Billing by the Company	9,765,298	9,765,298	9,765,298	9,765,298	9,765,298	9,765,298	9,765,298	9,765,298	9,765,298	9,765,298
Comparative Tariff Trans Atlantic Usc (Actual)	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Justified Billing	5,387,750	5,387,750	5,387,750	5,387,750	5,387,750	5,387,750	5,387,750	5,387,750	5,387,750	5,387,750
Overpayment	4,377,547	4,377,547	4,377,547	4,377,547	4,377,547	4,377,547	4,377,547	4,377,547	4,377,547	4,377,547
Summary	Payment Already made	Projected Payment to be made over project life	Total Payments (if Contract not revised)							
Payments made on applicable tariff	42,940,371	269,414,459	312,354,829							
Projected Payments on Justified tariff	18,857,126	129,306,010	148,163,136							
Total Over Payments over Project Life	24,083,244	140,108,449	164,191,693							

Notes:

- 1 Tariff are also linked to US & Pakistan CPI and KIBOR so actual payment will be higher.
- 2 No Corporate or Dividend Tax applicable on Wind Power Projects.
- 3 These are must run plants and will have to be paid in full under all circumstances.

Name of Project	Yunus Power Project	
Capacity	50	
Availability	31.71%	
Year of Commissioning	2017	
Exchange Rate	85.9	
Concession Period	20 years	

Amount in US Dollars

Years	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Tariff US Cents (Applicable)	20.95	20.95	21.61	21.61	21.61	21.81	21.81	21.81	21.81	21.81
Units Produced per annum	138,889,800	138,889,800	138,889,800	138,889,800	138,889,800	138,889,800	138,889,800	138,889,800	138,889,800	138,889,800
Billing by the Company	29,091,858	29,091,858	30,014,086	30,014,086	30,014,086	30,291,865	30,291,865	30,291,865	30,291,865	30,291,865
Comparative Tariff Indian Use (Actual)	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00
Justified Billing	9,722,286	9,722,286	9,722,286	9,722,286	9,722,286	9,722,286	9,722,286	9,722,286	9,722,286	9,722,286
Overpayment	19,369,572	19,369,572	20,291,800	20,291,800	20,291,800	20,569,579	20,569,579	20,569,579	20,569,579	20,569,579
	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
Tariff US Cents (Applicable)	6.65	6.65	6.65	6.65	6.65	6.65	6.65	6.65	6.65	6.65
Units Produced per annum	138,889,800	138,889,800	138,889,800	138,889,800	138,889,800	138,889,800	138,889,800	138,889,800	138,889,800	138,889,800
Billing by the Company	9,230,616	9,230,616	9,230,616	9,230,616	9,230,616	9,230,616	9,230,616	9,230,616	9,230,616	9,230,616
Comparative Tariff Indian Use (Actual)	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Justified Billing	5,555,592	5,555,592	5,555,592	5,555,592	5,555,592	5,555,592	5,555,592	5,555,592	5,555,592	5,555,592
Overpayment	3,675,024	3,675,024	3,675,024	3,675,024	3,675,024	3,675,024	3,675,024	3,675,024	3,675,024	3,675,024
Summary	Payment Already made	Projected Payment to be made over project life	Total Payments (If Contract not revised)							
Payments made on applicable tariff	88,197,801	303,793,660	391,991,460							
Projected Payments on Justified tariff	29,166,858	123,611,922	152,778,780							
Total Over Payments over Project Life	59,030,943	180,181,738	239,212,680							

Notes:

- 1 Tariff are also linked to US & Pakistan CPI and KIBOR so actual payment will be higher.
- 2 No Corporate or Dividend Tax applicable on Wind Power Projects.
- 3 These are must run plants and will have to be paid in full under all circumstances.

Name of Project	Sapphire Power Project	
Capacity	52.8	
Availability	32.50%	
Year of Commissioning	2016	
Exchange Rate	86.2	
Concession Period	20 years	

Amount in US Dollars

Years	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Tariff US Cents (Applicable)	15.14	15.14	15.91	15.91	15.91	15.91	15.91	15.91	15.91	15.91
Units Produced per annum	150,321,600	150,321,600	150,321,600	150,321,600	150,321,600	150,321,600	150,321,600	150,321,600	150,321,600	150,321,600
Billing by the Company	22,755,684	22,755,684	23,911,657	23,911,657	23,911,657	23,911,657	23,911,657	23,911,657	23,911,657	23,911,657
Comparative Tariff Indian Usc (Actual)	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00
Justified Billing	10,522,512	10,522,512	10,522,512	10,522,512	10,522,512	10,522,512	10,522,512	10,522,512	10,522,512	10,522,512
Overpayment	12,233,172	12,233,172	13,389,145	13,389,145	13,389,145	13,389,145	13,389,145	13,389,145	13,389,145	13,389,145
	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Tariff US Cents (Applicable)	6.91	6.91	6.91	6.91	6.91	6.91	6.91	6.91	6.91	6.91
Units Produced per annum	150,321,600	150,321,600	150,321,600	150,321,600	150,321,600	150,321,600	150,321,600	150,321,600	150,321,600	150,321,600
Billing by the Company	10,393,235	10,393,235	10,393,235	10,393,235	10,393,235	10,393,235	10,393,235	10,393,235	10,393,235	10,393,235
Comparative Tariff Indian Usc (Actual)	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Justified Billing	6,012,864	6,012,864	6,012,864	6,012,864	6,012,864	6,012,864	6,012,864	6,012,864	6,012,864	6,012,864
Overpayment	4,380,371	4,380,371	4,380,371	4,380,371	4,380,371	4,380,371	4,380,371	4,380,371	4,380,371	4,380,371
Summary	Payment Already made	Projected Payment to be made over project life	Total Payments (if Contract not revised)							
Payments made on applicable tariff	93,334,681	247,402,296	340,736,977							
Projected Payments on Justified tariff	42,090,048	123,263,712	165,353,760							
Total Over Payments over Project Life	51,244,633	124,138,584	175,383,217							

Notes:

- 1 Tariff are also linked to US & Pakistan CPI and KIBOR so actual payment will be higher.
- 2 No Corporate or Dividend Tax applicable on Wind Power Projects.
- 3 These are must run plants and will have to be paid in full under all circumstances.

Name of Project	Foundation Wind-1 Power Project	
Capacity	50	Amount in US Dollars
Availability	29.47%	
Year of Commissioning	2015	
Exchange Rate	86.2	
Concession Period	20 years	

Years	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Tariff US Cents (Applicable)	16.14	16.14	16.97	16.97	16.97	17.14	17.14	17.14	17.14	17.14
Units Produced per annum	129,078,600	129,078,600	129,078,600	129,078,600	129,078,600	129,078,600	129,078,600	129,078,600	129,078,600	129,078,600
Billing by the Company	20,831,995	20,831,995	21,904,638	21,904,638	21,904,638	22,124,072	22,124,072	22,124,072	22,124,072	22,124,072
Comparative Tariff Indian Usc (Actual)	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00
Justified Billing	9,035,502	9,035,502	9,035,502	9,035,502	9,035,502	9,035,502	9,035,502	9,035,502	9,035,502	9,035,502
Overpayment	11,796,493	11,796,493	12,869,136	12,869,136	12,869,136	13,088,570	13,088,570	13,088,570	13,088,570	13,088,570
	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Tariff US Cents (Applicable)	7.22	7.22	7.22	7.22	7.22	7.22	7.22	7.22	7.22	7.22
Units Produced per annum	129,078,600	129,078,600	129,078,600	129,078,600	129,078,600	129,078,600	129,078,600	129,078,600	129,078,600	129,078,600
Billing by the Company	9,319,475	9,319,475	9,319,475	9,319,475	9,319,475	9,319,475	9,319,475	9,319,475	9,319,475	9,319,475
Comparative Tariff Indian Usc (Actual)	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Justified Billing	5,163,144	5,163,144	5,163,144	5,163,144	5,163,144	5,163,144	5,163,144	5,163,144	5,163,144	5,163,144
Overpayment	4,156,331	4,156,331	4,156,331	4,156,331	4,156,331	4,156,331	4,156,331	4,156,331	4,156,331	4,156,331
Summary	Payment Already made	Projected Payment to be made over project life	Total Payments (if Contract not revised)							
Payments made on applicable tariff	107,377,906	203,815,109	311,193,015							
Projected Payments on Justified tariff	45,177,510	96,808,950	141,986,460							
Total Over Payments over Project Life	62,200,396	107,006,159	169,206,555							

Notes:

- 1 Tariff are also linked to US & Pakistan CPI and KIBOR so actual payment will be higher.
- 2 No Corporate or Dividend Tax applicable on Wind Power Projects.
- 3 These are must run plants and will have to be paid in full under all circumstances.

Foundation Wind-2 Power Project		
Name of Project		
Capacity	50	Amount in US Dollars
Availability	29.59%	
Year of Commissioning	2015	
Exchange Rate	86.2	
Concession Period	20 years	

Years	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Tariff US Cents (Applicable)	16.11	16.11	10.27	16.94	16.94	16.94	17.12	17.12	17.12	17.12
Units Produced per annum	129,604,200	129,604,200	129,604,200	129,604,200	129,604,200	129,604,200	129,604,200	129,604,200	129,604,200	129,604,200
Billing by the Company	20,877,941	20,877,941	13,315,276	21,954,951	21,954,951	21,954,951	22,185,647	22,185,647	22,185,647	22,185,647
Comparative Tariff Indian Use (Actual)	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00
Justified Billing	9,072,294	9,072,294	9,072,294	9,072,294	9,072,294	9,072,294	9,072,294	9,072,294	9,072,294	9,072,294
Overpayment	11,805,647	11,805,647	4,242,982	12,882,657	12,882,657	12,882,657	13,113,353	13,113,353	13,113,353	13,113,353
	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Tariff US Cents (Applicable)	7.22	7.22	7.22	7.22	7.22	7.22	7.22	7.22	7.22	7.22
Units Produced per annum	129,604,200	129,604,200	129,604,200	129,604,200	129,604,200	129,604,200	129,604,200	129,604,200	129,604,200	129,604,200
Billing by the Company	9,356,127	9,356,127	9,356,127	9,356,127	9,356,127	9,356,127	9,356,127	9,356,127	9,356,127	9,356,127
Comparative Tariff Indian Use (Actual)	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Justified Billing	5,184,168	5,184,168	5,184,168	5,184,168	5,184,168	5,184,168	5,184,168	5,184,168	5,184,168	5,184,168
Overpayment	4,171,959	4,171,959	4,171,959	4,171,959	4,171,959	4,171,959	4,171,959	4,171,959	4,171,959	4,171,959
Summary	Payment Already made	Projected Payment to be made over project life	Total Payments (if Contract not revised)							
Payments made on applicable tariff	98,981,060	204,258,811	303,239,872							
Projected Payments on Justified tariff	45,361,470	97,203,150	142,564,620							
Total Over Payments over Project Life	53,619,590	107,055,661	160,675,252							

Notes:

- 1 Tariff are also linked to US & Pakistan CPI and KIBOR so actual payment will be higher.
- 2 No Corporate or Dividend Tax applicable on Wind Power Projects.
- 3 These are must run plants and will have to be paid in full under all circumstances.

Name of Project	FFC Power Project	
Capacity	49.5	Amount in US Dollars
Availability	33.12%	
Year of Commissioning	2013	
Exchange Rate	85	
Concession Period	20 years	

Years	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Tariff US Cents (Applicable)	19.71	19.71	20.36	20.36	20.36	20.24	20.24	20.24	20.24	20.24
Units Produced per annum	143,614,944	143,614,944	143,614,944	143,614,944	143,614,944	143,614,944	143,614,944	143,614,944	143,614,944	143,614,944
Billing by the Company	28,306,505	28,306,505	29,240,003	29,240,003	29,240,003	29,074,702	29,074,702	29,074,702	29,074,702	29,074,702
Comparative Tariff Indian Use (Actual)	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00
Justified Billing	10,053,046	10,053,046	10,053,046	10,053,046	10,053,046	10,053,046	10,053,046	10,053,046	10,053,046	10,053,046
Overpayment	18,253,459	18,253,459	19,186,957	19,186,957	19,186,957	19,021,656	19,021,656	19,021,656	19,021,656	19,021,656
	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Tariff US Cents (Applicable)	5.46	5.46	5.46	5.46	5.46	5.46	5.46	5.46	5.46	5.46
Units Produced per annum	143,614,944	143,614,944	143,614,944	143,614,944	143,614,944	143,614,944	143,614,944	143,614,944	143,614,944	143,614,944
Billing by the Company	7,841,376	7,841,376	7,841,376	7,841,376	7,841,376	7,841,376	7,841,376	7,841,376	7,841,376	7,841,376
Comparative Tariff Indian Use (Actual)	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Justified Billing	5,744,598	5,744,598	5,744,598	5,744,598	5,744,598	5,744,598	5,744,598	5,744,598	5,744,598	5,744,598
Overpayment	2,096,778	2,096,778	2,096,778	2,096,778	2,096,778	2,096,778	2,096,778	2,096,778	2,096,778	2,096,778
Summary	Payment Already made	Projected Payment to be made over project life	Total Payments (if Contract not revised)							
Payments made on applicable tariff	202,482,422	165,637,865	368,120,287							
Projected Payments on Justified tariff	70,371,323	87,605,116	157,976,438							
Total Over Payments over Project Life	132,111,100	78,032,749	210,143,849							

Notes:

- 1 Tariff are also linked to US & Pakistan CPI and KIBOR so actual payment will be higher.
- 2 No Corporate or Dividend Tax applicable on Wind Power Projects.
- 3 These are must run plants and will have to be paid in full under all circumstances.

Name of Project	Three Gorges First Power Project	
Capacity	49.5	Amount in US Dollars
Availability	31.99%	
Year of Commissioning	2015	
Exchange Rate	85	
Concession Period	20 years	

Years	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Tariff US Cents (Applicable)	16.73	16.73	17.56	17.56	17.56	17.33	17.33	17.33	17.33	7.05
Units Produced per annum	138,715,038	138,715,038	138,715,038	138,715,038	138,715,038	138,715,038	138,715,038	138,715,038	138,715,038	138,715,038
Billing by the Company	23,207,026	23,207,026	24,358,361	24,358,361	24,358,361	24,039,316	24,039,316	24,039,316	24,039,316	9,779,410
Comparative Tariff Indian Usc (Actual)	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00
Justified Billing	9,710,053	9,710,053	9,710,053	9,710,053	9,710,053	9,710,053	9,710,053	9,710,053	9,710,053	9,710,053
Overpayment	13,496,973	13,496,973	14,648,308	14,648,308	14,648,308	14,329,263	14,329,263	14,329,263	14,329,263	69,358
Years	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Tariff US Cents (Applicable)	7.05	7.05	7.05	7.05	7.05	7.05	7.05	7.05	7.05	7.05
Units Produced per annum	138,715,038	138,715,038	138,715,038	138,715,038	138,715,038	138,715,038	138,715,038	138,715,038	138,715,038	138,715,038
Billing by the Company	9,779,410	9,779,410	9,779,410	9,779,410	9,779,410	9,779,410	9,779,410	9,779,410	9,779,410	9,779,410
Comparative Tariff Indian Usc (Actual)	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Justified Billing	5,548,602	5,548,602	5,548,602	5,548,602	5,548,602	5,548,602	5,548,602	5,548,602	5,548,602	5,548,602
Overpayment	4,230,809	4,230,809	4,230,809	4,230,809	4,230,809	4,230,809	4,230,809	4,230,809	4,230,809	4,230,809
Summary	Payment Already made	Projected Payment to be made over project life	Total Payments (if Contract not revised)							
Payments made on applicable tariff	119,489,134	203,730,776	323,219,910							
Projected Payments on Justified tariff	48,550,263	104,036,279	152,586,542							
Total Over Payments over Project Life	70,938,870	99,694,498	170,633,368							

Notes:

- 1 Tariff are also linked to US & Pakistan CPI and KIBOR so actual payment will be higher.
- 2 No Corporate or Dividend Tax applicable on Wind Power Projects.
- 3 These are must run plants and will have to be paid in full under all circumstances.

Name of Project	ZorluPower Project	
Capacity	56.4	Amount in US Dollars
Availability	34.39%	
Year of Commissioning	2013	
Exchange Rate	61	
Concession Period	20 years	

Years	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Tariff US Cents (Applicable)	12.92	12.92	12.92	12.92	12.92	12.92	12.92	12.92	12.92	12.92
Units Produced per annum	169,908,610	169,908,610	169,908,610	169,908,610	169,908,610	169,908,610	169,908,610	169,908,610	169,908,610	169,908,610
Billing by the Company	21,957,460	21,957,460	21,957,460	21,957,460	21,957,460	21,957,460	21,957,460	21,957,460	21,957,460	21,957,460
Comparative Tariff Indian Usc (Actual)	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00
Justified Billing	11,893,603	11,893,603	11,893,603	11,893,603	11,893,603	11,893,603	11,893,603	11,893,603	11,893,603	11,893,603
Overpayment	10,063,857	10,063,857	10,063,857	10,063,857	10,063,857	10,063,857	10,063,857	10,063,857	10,063,857	10,063,857
	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Tariff US Cents (Applicable)	4.19	4.19	4.19	4.19	4.19	4.19	4.19	4.19	4.19	4.19
Units Produced per annum	169,908,610	169,908,610	169,908,610	169,908,610	169,908,610	169,908,610	169,908,610	169,908,610	169,908,610	169,908,610
Billing by the Company	7,118,491	7,118,491	7,118,491	7,118,491	7,118,491	7,118,491	7,118,491	7,118,491	7,118,491	7,118,491
Comparative Tariff Indian Usc (Actual)	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Justified Billing	6,796,344	6,796,344	6,796,344	6,796,344	6,796,344	6,796,344	6,796,344	6,796,344	6,796,344	6,796,344
Overpayment	322,147	322,147	322,147	322,147	322,147	322,147	322,147	322,147	322,147	322,147
Summary	Payment Already made	Projected Payment to be made over project life	Total Payments (if Contract not revised)							
Payments made on applicable tariff	153,702,217	137,057,290	290,759,506							
Projected Payments on Justified tariff	83,255,219	103,644,252	186,899,471							
Total Over Payments over Project Life	70,446,998	33,413,038	103,860,036							

Notes:

- 1 Tariff are also linked to US & Pakistan CPI and KIBOR so actual payment will be higher.
- 2 No Corporate or Dividend Tax applicable on Wind Power Projects.
- 3 These are must run plants and will have to be paid in full under all circumstances.

Name of Project	Burj Power Project	
Capacity	14	Amount in US Dollars
Availability	41.10%	
Year of Commissioning	2020	
Exchange Rate	105	
Concession Period	25	

Years	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Tariff US Cents (Applicable)	7.15	7.15	7.15	7.15	7.15	7.15	7.15	7.15	7.15	7.15
Units Produced per annum	50,405,040	50,405,040	50,405,040	50,405,040	50,405,040	50,405,040	50,405,040	50,405,040	50,405,040	50,405,040
Billing by the Company	3,603,456	3,603,456	3,603,456	3,603,456	3,603,456	3,603,456	3,603,456	3,603,456	3,603,456	3,603,456
Comparative Tariff Indian Usc (Actual)	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00
Justified Billing	3,528,353	3,528,353	3,528,353	3,528,353	3,528,353	3,528,353	3,528,353	3,528,353	3,528,353	3,528,353
Overpayment	75,104	75,104	75,104	75,104	75,104	75,104	75,104	75,104	75,104	75,104
Years	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039
Tariff US Cents (Applicable)	2.25	2.25	2.25	2.25	2.25	2.25	2.25	2.25	2.25	2.25
Units Produced per annum	50,405,040	50,405,040	50,405,040	50,405,040	50,405,040	50,405,040	50,405,040	50,405,040	50,405,040	50,405,040
Billing by the Company	1,135,122	1,135,122	1,135,122	1,135,122	1,135,122	1,135,122	1,135,122	1,135,122	1,135,122	1,135,122
Comparative Tariff Indian Usc (Actual)	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Justified Billing	2,016,202	2,016,202	2,016,202	2,016,202	2,016,202	2,016,202	2,016,202	2,016,202	2,016,202	2,016,202
Overpayment	(881,080)	(881,080)	(881,080)	(881,080)	(881,080)	(881,080)	(881,080)	(881,080)	(881,080)	(881,080)
Summary	Payment Already made	Projected Payment to be made over project life	Total Payments (if Contract not revised)							
Payments made on applicable tariff		47,385,778	47,385,778							
Projected Payments on Justified tariff		55,445,544	55,445,544							
Total Over Payments over Project Life	-	(8,059,766)	(8,059,766)							

Notes:

- 1 Tariff are also linked to US & Pakistan CPI and KIBOR so actual payment will be higher.
- 2 No Corporate or Dividend Tax applicable on Wind Power Projects.
- 3 These are must run plants and will have to be paid in full under all circumstances.

Name of Project	Shaheen Power Project	
Capacity	51	Amount in US Dollars
Availability	35.42%	
Year of Commissioning	2020	
Exchange Rate	105	
Concession Period	25	

Years	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Tariff US Cents (Applicable)	6.44	6.44	6.44	6.44	6.44	6.44	6.44	6.44	6.44	6.44
Units Produced per annum	158,224,522	158,224,522	158,224,522	158,224,522	158,224,522	158,224,522	158,224,522	158,224,522	158,224,522	158,224,522
Billing by the Company	10,189,659	10,189,659	10,189,659	10,189,659	10,189,659	10,189,659	10,189,659	10,189,659	10,189,659	10,189,659
Comparative Tariff Indian Usc (Actual)	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00
Justified Billing	11,075,717	11,075,717	11,075,717	11,075,717	11,075,717	11,075,717	11,075,717	11,075,717	11,075,717	11,075,717
Overpayment	(886,057)	(886,057)	(886,057)	(886,057)	(886,057)	(886,057)	(886,057)	(886,057)	(886,057)	(886,057)
Years	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039
Tariff US Cents (Applicable)	2.12	2.12	2.12	2.12	2.12	2.12	2.12	2.12	2.12	2.12
Units Produced per annum	158,224,522	158,224,522	158,224,522	158,224,522	158,224,522	158,224,522	158,224,522	158,224,522	158,224,522	158,224,522
Billing by the Company	3,352,778	3,352,778	3,352,778	3,352,778	3,352,778	3,352,778	3,352,778	3,352,778	3,352,778	3,352,778
Comparative Tariff Indian Usc (Actual)	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Justified Billing	6,328,981	6,328,981	6,328,981	6,328,981	6,328,981	6,328,981	6,328,981	6,328,981	6,328,981	6,328,981
Overpayment	(2,976,203)	(2,976,203)	(2,976,203)	(2,976,203)	(2,976,203)	(2,976,203)	(2,976,203)	(2,976,203)	(2,976,203)	(2,976,203)
Summary	Payment Already made	Projected Payment to be made over project life	Total Payments (if Contract not revised)							
Payments made on applicable tariff		135,424,368	135,424,368							
Projected Payments on Justified tariff		174,046,974	174,046,974							
Total Over Payments over Project Life	-	(38,622,606)	(38,622,606)							

Notes:

- 1 Tariff are also linked to US & Pakistan CPI and KIBOR so actual payment will be higher.
- 2 No Corporate or Dividend Tax applicable on Wind Power Projects.
- 3 These are must run plants and will have to be paid in full under all circumstances.

Name of Project	Zephyr Power Project	
Capacity	50	Amount in US Dollars
Availability	32.70%	
Year of Commissioning	2020	
Exchange Rate	86.36	
Concession Period	20	

Years	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Tariff US Cents (Applicable)	18.56	18.56	19.44	19.44	19.44	19.60	19.60	19.60	19.60	19.60
Units Produced per annum	143,226,000	143,226,000	143,226,000	143,226,000	143,226,000	143,226,000	143,226,000	143,226,000	143,226,000	143,226,000
Billing by the Company	26,579,881	26,579,881	27,843,134	27,843,134	27,843,134	28,072,296	28,072,296	28,072,296	28,072,296	28,072,296
Comparative Tariff Indian Usc (Actual)	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00
Justified Billing	10,025,820	10,025,820	10,025,820	10,025,820	10,025,820	10,025,820	10,025,820	10,025,820	10,025,820	10,025,820
Overpayment	16,554,061	16,554,061	17,817,314	17,817,314	17,817,314	18,046,476	18,046,476	18,046,476	18,046,476	18,046,476
	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039
Tariff US Cents (Applicable)	7.25	7.25	7.25	7.25	7.25	7.25	7.25	7.25	7.25	7.25
Units Produced per annum	143,226,000	143,226,000	143,226,000	143,226,000	143,226,000	143,226,000	143,226,000	143,226,000	143,226,000	143,226,000
Billing by the Company	10,383,885	10,383,885	10,383,885	10,383,885	10,383,885	10,383,885	10,383,885	10,383,885	10,383,885	10,383,885
Comparative Tariff Indian Usc (Actual)	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Justified Billing	5,729,040	5,729,040	5,729,040	5,729,040	5,729,040	5,729,040	5,729,040	5,729,040	5,729,040	5,729,040
Overpayment	4,654,845	4,654,845	4,654,845	4,654,845	4,654,845	4,654,845	4,654,845	4,654,845	4,654,845	4,654,845
Summary	Payment Already made	Projected Payment to be made over project life	Total Payments (if Contract not revised)							
Payments made on applicable tariff		380,889,495	380,889,495							
Projected Payments on Justified tariff		157,548,600	157,548,600							
Total Over Payments over Project Life	-	223,340,895	223,340,895							

Notes:

- 1 Tariff are also linked to US & Pakistan CPI and KIBOR so actual payment will be higher.
- 2 No Corporate or Dividend Tax applicable on Wind Power Projects.
- 3 These are must run plants and will have to be paid in full under all circumstances.

Name of Project	Western Power Project	
Capacity	50	Amount in US Dollars
Availability	37.00%	
Year of Commissioning	2020	
Exchange Rate	105	
Concession Period	25	

Years	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Tariff US Cents (Applicable)	6.34	6.34	6.34	6.34	6.34	6.34	6.34	6.34	6.34	6.34
Units Produced per annum	162,060,000	162,060,000	162,060,000	162,060,000	162,060,000	162,060,000	162,060,000	162,060,000	162,060,000	162,060,000
Billing by the Company	10,274,604	10,274,604	10,274,604	10,274,604	10,274,604	10,274,604	10,274,604	10,274,604	10,274,604	10,274,604
Comparative Tariff Indian Usc (Actual)	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00
Justified Billing	11,344,200	11,344,200	11,344,200	11,344,200	11,344,200	11,344,200	11,344,200	11,344,200	11,344,200	11,344,200
Overpayment	(1,069,596)	(1,069,596)	(1,069,596)	(1,069,596)	(1,069,596)	(1,069,596)	(1,069,596)	(1,069,596)	(1,069,596)	(1,069,596)
	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039
Tariff US Cents (Applicable)	2.08	2.08	2.08	2.08	2.08	2.08	2.08	2.08	2.08	2.08
Units Produced per annum	162,060,000	162,060,000	162,060,000	162,060,000	162,060,000	162,060,000	162,060,000	162,060,000	162,060,000	162,060,000
Billing by the Company	3,370,848	3,370,848	3,370,848	3,370,848	3,370,848	3,370,848	3,370,848	3,370,848	3,370,848	3,370,848
Comparative Tariff Indian Usc (Actual)	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Justified Billing	6,482,400	6,482,400	6,482,400	6,482,400	6,482,400	6,482,400	6,482,400	6,482,400	6,482,400	6,482,400
Overpayment	(3,111,552)	(3,111,552)	(3,111,552)	(3,111,552)	(3,111,552)	(3,111,552)	(3,111,552)	(3,111,552)	(3,111,552)	(3,111,552)
Summary	Payment Already made	Projected Payment to be made over project life	Total Payments (if Contract not revised)							
Payments made on applicable tariff		136,454,520	136,454,520							
Projected Payments on Justified tariff		178,266,000	178,266,000							
Total Over Payments over Project Life	-	(41,811,480)	(41,811,480)							

Notes:

- 1 Tariff are also linked to US & Pakistan CPI and KIBOR so actual payment will be higher.
- 2 No Corporate or Dividend Tax applicable on Wind Power Projects.
- 3 These are must run plants and will have to be paid in full under all circumstances.

STATUS-WIND POWER PROJECTS							
S.No.	Name of Project	Capacity MW	Location	Tariff Regime	EPA / IA	Current Status	Remarks
1	FFC Energy Limited	49.5	Jhimpir	Cost Plus	Signed EPA with CPPA/NTDCL and IA with GOP (AEDB)	Operational	Achieved COD on 16-May-2013
2	Zorlu Enerji Pakistan (Pvt.) Limited	56.4	Jhimpir	Cost Plus	Signed EPA with CPPA/NTDCL and IA with GOP (AEDB)	Operational	Achieved COD on 26-July-2013
3	Three Gorges Pakistan First Wind Farm (Pvt.) Limited	49.5	Jhimpir	Cost Plus	Signed EPA with CPPA/NTDCL and IA with GOP (AEDB)	Operational	Achieved COD on 25-Nov-2014
4	Foundation Wind Energy II (Pvt.) Limited	50	Gharo	Cost Plus	Signed EPA with CPPA/NTDCL and IA with GOP (AEDB)	Operational	Achieved COD on 10 Dec-2014
5	Foundation Wind Energy –I Limited	50	Gharo	Cost Plus	Signed EPA with CPPA/NTDCL and IA with GOP (AEDB)	Operational	Achieved COD on 11-Apr-2015
6	Sapphire Wind Power Company Limited	52.8	Jhimpir	Upfront	Signed EPA with CPPA/NTDCL and IA with GOP (AEDB)	Operational	Achieved COD on 22 Nov-2015
7	Metro Power Company Limited	50	Jhimpir	Cost Plus	Signed EPA with CPPA/NTDCL and IA with GOP (AEDB)	Operational	Achieved COD on 16-Sep-2016
8	Yunus Energy Limited	50	Jhimpir	Upfront	Signed EPA with CPPA/NTDCL and IA with GOP (AEDB)	Operational	Achieved COD on 16-Sep-2016
9	Master Wind Energy Pvt. Limited	52.8	Jhimpir	Upfront	Signed EPA with CPPA/NTDCL and IA with GOP (AEDB)	Operational	Achieved COD on 14-Oct-2016
10	Tapal Wind Energy Pvt. Limited	30	Jhimpir	Upfront	Signed EPA with CPPA/NTDCL and IA with GOP (AEDB)	Operational	Achieved COD on 8-Oct-2016

11	Gul Ahmed Wind Power Ltd	50	Jhimpir	Upfront	Signed EPA with CPPA/NTDCL and IA with GOP (AEDB)	Operational	Achieved COD on 18-Oct-2016
12	Tenega Generasi Limited	49.5	Gharo	Upfront	Signed EPA with CPPA/NTDCL and IA with GOP (AEDB)	Operational	Achieved COD on 11-Oct-2016
13	Hydro China Dawood Power Pvt. Limited	49.5	Gharo	Upfront	Signed EPA with CPPA/NTDCL and IA with GOP (AEDB)	Operational	Achieved COD on 4-Apr-2017
14	Sachal Energy Development Pvt. Limited	50	Jhimpir	Cost Plus	Signed EPA with CPPA/NTDCL and IA with GOP (AEDB)	Operational	Achieved COD on 11-Apr-2017
15	UEP Wind Power Pvt. Limited	99	Jhimpir	Upfront	Signed EPA with CPPA/NTDCL and IA with GOP (AEDB)	Operational	Achieved COD on 16-Jun-2017
16	Jhampir Wind Power Limited	50	Jhimpir	Upfront	Signed EPA with CPPA-G and IA with GOP (AEDB)	Operational	Achieved COD on 16-Mar-2018
17	Hawa Energy Pvt. Limited	49.6	Jhimpir	Upfront	Signed EPA with CPPA-G and IA with GOP (AEDB)	Operational	Achieved COD on 15-Mar-2018
18	Hartford Alternative Energy Pvt. Limited	49.3	Jhimpir	Upfront	Signed EPA with CPPA-G and IA with GOP (AEDB)	Operational	Achieved COD on 16-Mar-2018
19	Three Gorges Pakistan Second Wind Farm Pakistan Limited	49.5	Jhimpir	Upfront	Signed EPA with CPPA-G and IA with GOP (AEDB)	Operational	Achieved COD on 20-Jun-2018
20	Three Gorges Pakistan Third Wind Farm Pakistan (Pvt.) Limited	49.5	Jhimpir	Upfront	Signed EPA with CPPA-G and IA with GOP (AEDB)	Operational	Achieved COD on 9-Jun-2018
21	Tricon Boston Consulting Corporation Pvt. Limited - A	49.6	Jhimpir	Upfront	Signed EPA with CPPA-G and IA with GOP (AEDB)	Operational	Achieved COD on 16-Aug-2018
22	Tricon Boston Consulting Corporation Pvt. Limited - B	49.6	Jhimpir	Upfront	Signed EPA with CPPA-G and IA with GOP (AEDB)	Operational	Achieved COD on 14-Sep-2018

23	Tricon Boston Consulting Corporation Pvt. Limited - C	49.6	Jhimpir	Upfront	Signed EPA with CPPA-G and IA with GOP (AEDB)	Operational	Achieved COD on 11-Sep-2018
24	Zephyr Power Pvt. Limited	50	Gharo	Upfront	Signed EPA with CPPA-G and IA with GOP (AEDB)	Under Construction	Achieved FC on 10-May-2017
25	Burj Wind Energy Pvt. Ltd	14	Gujju			LOI stage	
26	Western Energy Pvt. Ltd	50	Jhimpir	Cost Plus		LOI stage	
27	Trans Atlantic Energy Pvt. Ltd	50	Jhimpir			LOI stage	
28	Shaheen Renewable Energy - 1 Pvt. Ltd	51	Jhimpir	Cost Plus		LOI stage	

Tariff Component	Wind Cost Plus						Upfront Tariff 2013								Upfront Tariff 2015	
	FFC	ZEPL	FWEL-I	FWEL-II	TGF	Sachal	Act Wind	Gul Ahmed	Hydrochina	Master Wind	Sapphire	Tenaga	UEP	Younus	Hawa	Jhimpir
(Rs./kWh)																
O&M	2.0952	1.8376	2.7868	2.8023	2.5672	2.4751	2.5457	2.5457	2.5457	2.5457	2.5457	2.5457	2.5457	2.5457	2.2548	2.2548
Return on Equity	5.3824	7.5161	6.7141	6.9887	5.6153	5.5603	7.1763	6.9688	6.7614	6.9688	6.7614	6.8652	6.7614	7.1763	5.0204	5.0204
Debt Servicing	12.1566	11.1741	10.3828	10.0796	15.1293	16.3492	13.9782	13.9764	14.0692	13.9764	13.7779	13.9753	14.0692	13.8903	10.7956	10.7956
Insurance	0.2810	0.2866	0.3112	0.3130	0.4492	0.4875	0.7833	0.7833	0.7833	0.7833	0.7833	0.7833	0.7833	0.7833	0.6349	0.6349
Total	19.9152	20.8144	20.1949	20.1836	23.7610	24.8721	24.4835	24.2742	24.1596	24.2742	23.8683	24.1695	24.1596	24.3956	18.7058	18.7058
Indexation Values																
CPI (General)	237.61	237.61	237.61	237.61	237.61	237.61										
US CPI	252.78	252.78	252.78	252.78	252.78	252.78	252.776	252.78	252.78	252.776	252.776	252.776	252.776	252.776	252.776	252.776
Exchange Rate	140.70	140.70	140.70	140.70	140.70	140.70	140.7	140.7	140.7	140.70	140.70	140.70	140.70	140.70	140.70	140.70
Kibor 6-Month	10.80%	10.80%	10.80%	10.80%												
Libor 6-Month		2.88%	2.88%	2.88%	2.88%	2.88%										
Kibor 3-Month								10.99%		10.99%		10.99%		10.99%		
Libor 3-Month							10.99%	2.60%	2.60%	2.60%	2.60%	2.60%	2.60%		2.60%	2.60%

Source: CPPA

Rate at which actual payments made.

SECTION-D

OVERPAYMENTS TO IPP'S BASED ON SOLAR POWER

Amount In USD (\$)

Solar Power Projects

Summary	Payment Already Made	Projected Payment To Be Made Over Project Life	Total Payments (If Contract Not Revised)
Payments as per applicable tariff of the Company	447,746,223	1,323,623,013	1,771,369,236
Payments as per Justified tariff	260,610,000	904,470,000	1,165,080,000
Total Over Payments over Project Life	187,136,223	419,153,013	606,289,236

The basis for calculation of overpayments is according to Solar tariff prevalent in India.

First Ten (1-10)	Tariff Approved	17 Cents
	Tariff in India	10 Cents
Balance (11-25)	Tariff Approved	7.8 Cents
	Tariff in India	6.0 Cents

SOLAR OVERPAYMENTS

1. Summary:

- i. Quaid-e-Azam Solar Park was instrumental in getting very high upfront tariff for solar approved at US cents 14 levelized and 18 cents for first 10 years through influence peddling and corruption.
- ii. That the solar tariff in India at the time was between 7-8 cents with similar cost structure, while a much higher upfront tariff and capital cost allowed by NEPRA has caused a massive loss to the country.
- iii. That the first project in the Quaid-e-Azam Solar Park established by the Punjab government involved a kickback of approximately \$ 50 million.
- iv. That the kickbacks from the other companies exclusively allowed to setup solar plants at the Quaid-e-Azam Solar Park amounting to US \$150 million are suspected.

2. Actions Taken to Verify the Allegations:

- I. AEDB was asked to supply basis for them recommending the upfront tariffs; in response they supplied 2 reports one by GIZ and the other author unknown (Annex A). These 2 reports are not based on concrete analysis and give references of tariffs well before the NEPRA upfront tariff. The reports seem to be sponsored to justify the high tariffs given. There is evidenced that the Qaid-e-Azam Solar Park Company was involved in developing the upfront tariff.
- II. Authentic reports showed that the solar tariffs in India have been ranging between 7-8 cents levelized during the same period when upfront tariff for Qaid-e-Azam Solar Park was awarded.
- III. Expert opinion was sought from renowned energy experts who confirmed that the tariff was overly ambitious and a far better tariff could have been obtained through competitive tariff based bids.

3. Brief Facts / Verification Proceedings:

- i. Government of Pakistan and NEPRA realized the very high tariffs in 2017 and then stopped processing any further solar projects and stated that all new projects shall be competitively bid.
- ii. **Solar tariffs cannot be directly compared across countries due to the difference in the solar radiation and the only logical comparison in this case is India. The tariff comparisons are as under:**

Pakistan's Solar Energy Projects Tariffs

Sr. #	Name of Project	Capacity (MW)	Location	Date of Completion	First 10 Year Reference Tariff	Current Tariff
1	M/s QA Solar Pvt. Ltd.	100	Quaid e Azam Solar Park, Bahawalpur	15-Jul-15	19.0888	19.3326
2	M/s Appolo Solar Pakistan Ltd.	100	Quaid-e-Azam Solar Park, Bahawalpur	31-Jul-16	18.0397	not available
3	M/s Crest Energy Pakistan Ltd.	100	Quaid-e-Azam Solar Park, Bahawalpur	31-Jul-16	18.0397	not available
4	M/s Best Green Energy Pakistan Ltd.	100	Quaid-e-Azam Solar Park, Bahawalpur	31-Jul-16	18.0937	not available

India's Solar Energy Projects Tariffs

Solar Tariff Trend in India from 2010-2016

Previous Bid Results					
	Year	Capacity on Offer (MW)	Highest Bid (Rs./KWH)	Lowest Bid (Rs./KWH)	Weighted average Price (Rs./KWH)
NSM Batch 1	Dec'10	150	12.76	10.95	12.16
NSM Batch 2	Dec'11	350	9.39	7.49	8.79
Orissa Phase 1	March'12	25	8.98	7.0	8.36
Orissa Phase 2	Dec'12	25	9.50	7.28	8.73
Karnataka	Apr'12	60	8.5	7.94	8.34
Madhya Pradesh	Jun'12	125	124.45	7.9	8.05
Tamil Nadu	Mar'13	150	14.5	5.97	6.48*

Rajasthan	Mar'13	75	8.25	6.45	6.45 (L1)
Andhra Pradesh	Ap'13	226	15.99	6.49	6.49 (L1)
Punjab Phase 1	June'13	270	8.75	7.2	8.41
Uttar Pradesh Phase 1	Aug'13	130	9.33	8.01	8.9
Karnataka Phase 2	Aug'13	130	8.05	5.5	6.87
Madhya Pradesh Phase 2	Jan'14	100	6.97	6.47	6.86
Andhra Pradesh Phase 2	Oct'14	500	5.99** (7.03 Levelized)	5.25** (6.17 Level.)	5.75** (6.75 Level.)
Karnataka	Nov'14	500	7.12	6.71	6.94
Telangana	Nov'14	500	6.9	6.46	6.72
Punjab (Capacity 5-24 MW)	Feb'15	100	7.45	6.88	7.17
Punjab (Capacity 25-100 MW)	Feb'15	100	7.56	6.88	7.16
NTPC Anantapur	May'15	250	-	-	6.16*** (L1)
Uttar Pradesh Phase 2	June'15	215	8.6	7.02	8.04
Madhya Pradesh	June'15	300	5.641	5.051	5.36
Telangana Group 1 ****	August'15	500	5.8727	5.4991	5.73
Telangana Group 2 ****	August'15	1500	5.8877	5.1729	5.62
Punjab	Sep'15	500	5.98	5.09	5.65
Uttarkhand	Oct'15	170	5.99	5.57	5.766
AP-500 MW Bundling Scheme *****	Nov'15	500	4.63	4.63	4.63
AP-350 MW Bundling Scheme*****	Dec'15	350	4.63	4.63	4.63
AP-150 MW Bundling Scheme (DCR) *****	Dec'15	150	5.13	5.12	5.123

Haryana (State Scheme)	Dec'15	150	5.00	5.00	5.00
Rajasthan-420 MW Bundling	Jan'16	420	4.36	4.35	4.351
UP-100 MW Bundling	Jan'16	100	4.78	4.78	4.78
* 5% escalation for 10 years					
** 3% escalation for 10 years. Separate L1 for 9 districts					

- iii. The upfront tariff has resulted in an overpayment of US \$ 606 (Rs 90.94 billion @ \$150) to these Quaid-e-Azam Solar Park companies over the life of the project.
- iv. Quaid-e-Azam Solar Park details and files were obtained.
- v. CPPA and NTDC record of payments and availability was verified (ANNEX-A).

4. Findings

After examining the details, it is revealed that:

- I. The Government of Punjab, AEDB and NEPRA are all involved in a collusion to set up a very high upfront tariff and capital cost which has translated into high price of electricity resulting loss of competitiveness of Pakistani exports and industry leading to a massive Balance of Payments (BoP) deficit and export viability crisis.
- II. That the only solar projects to be set up on this exaggerated upfront tariff are in Qaid-e-Azam Solar Park and therefore consideration was involved in getting permissions.

Name of Project	QA Solar Power Project	
Capacity	100	
Availability	17.50%	
Year of Commissioning	2015	
Exchange Rate	105	
Concession Period	25 years	

Amount in US Dollars

0

Years	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Tariff US Cents (Applicable)	17.18	17.18	17.18	17.18	17.18	17.18	17.18	17.18	17.18	17.18
Units Produced per annum	153,300,000	153,300,000	153,300,000	153,300,000	153,300,000	153,300,000	153,300,000	153,300,000	153,300,000	153,300,000
Billing by the Company	26,338,013	26,338,013	26,338,013	26,338,013	26,338,013	26,338,013	26,338,013	26,338,013	26,338,013	26,338,013
Comparative Tariff Indian Average Usc (Actual)	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00
Justified Billing	15,330,000	15,330,000	15,330,000	15,330,000	15,330,000	15,330,000	15,330,000	15,330,000	15,330,000	15,330,000
Overpayment	11,008,013	11,008,013	11,008,013	11,008,013	11,008,013	11,008,013	11,008,013	11,008,013	11,008,013	11,008,013
	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Tariff US Cents (Applicable)	7.80	7.80	7.80	7.80	7.80	7.80	7.80	7.80	7.80	7.80
Units Produced per annum	153,300,000	153,300,000	153,300,000	153,300,000	153,300,000	153,300,000	153,300,000	153,300,000	153,300,000	153,300,000
Billing by the Company	11,964,145	11,964,145	11,964,145	11,964,145	11,964,145	11,964,145	11,964,145	11,964,145	11,964,145	11,964,145
Comparative Tariff Indian Average Usc (Actual)	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
Justified Billing	9,198,000	9,198,000	9,198,000	9,198,000	9,198,000	9,198,000	9,198,000	9,198,000	9,198,000	9,198,000
Overpayment	2,766,145	2,766,145	2,766,145	2,766,145	2,766,145	2,766,145	2,766,145	2,766,145	2,766,145	2,766,145
						2,035	2,036	2,037	2,038	2,039
Summary	Payment Already made	Projected Payment to be made over project life	Total Payments (if Contract not revised)		Tariff US Cents	7.80	7.80	7.80	7.80	7.80
Payments made on applicable tariff	131,690,066	311,152,244	442,842,309		Units Produced	153,300,000	153,300,000	153,300,000	153,300,000	153,300,000
Projected Payments on Justified tariff	76,650,000	214,620,000	291,270,000							
Total Over Payments over Project Life	55,040,066	96,532,244	151,572,309		Billing by the C	11,964,145	11,964,145	11,964,145	11,964,145	11,964,145
					Comparative T	6.00	6.00	6.00	6.00	6.00
					Justified Billing	9,198,000	9,198,000	9,198,000	9,198,000	9,198,000
					Overpayment	2,766,145	2,766,145	2,766,145	2,766,145	2,766,145

Notes:

- 1 Tariff are also linked to US & Pakistan CPI and KIBOR so actual payment will be higher.
- 2 No Corporate or Dividend Tax applicable on Power Projects.
- 3 These are must run plants and will have to be paid in full under all circumstances.

Name of Project	Appolo Solar Power	
Capacity	100	
Availability	17.50%	
Year of Commissioning	2016	
Exchange Rate	105	
Concession Period	25 years	

Amount in US Dollars

0

Years	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Tariff US Cents (Applicable)	17.18	17.18	17.18	17.18	17.18	17.18	17.18	17.18	17.18	17.18
Units Produced per annum	153,300,000	153,300,000	153,300,000	153,300,000	153,300,000	153,300,000	153,300,000	153,300,000	153,300,000	153,300,000
Billing by the Company	26,338,013	26,338,013	26,338,013	26,338,013	26,338,013	26,338,013	26,338,013	26,338,013	26,338,013	26,338,013
Comparative Tariff Indian Average Usc (Actual)	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00
Justified Billing	15,330,000	15,330,000	15,330,000	15,330,000	15,330,000	15,330,000	15,330,000	15,330,000	15,330,000	15,330,000
Overpayment	11,008,013	11,008,013	11,008,013	11,008,013	11,008,013	11,008,013	11,008,013	11,008,013	11,008,013	11,008,013
	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Tariff US Cents (Applicable)	7.80	7.80	7.80	7.80	7.80	7.80	7.80	7.80	7.80	7.80
Units Produced per annum	153,300,000	153,300,000	153,300,000	153,300,000	153,300,000	153,300,000	153,300,000	153,300,000	153,300,000	153,300,000
Billing by the Company	11,964,145	11,964,145	11,964,145	11,964,145	11,964,145	11,964,145	11,964,145	11,964,145	11,964,145	11,964,145
Comparative Tariff Indian Average Usc (Actual)	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
Justified Billing	9,198,000	9,198,000	9,198,000	9,198,000	9,198,000	9,198,000	9,198,000	9,198,000	9,198,000	9,198,000
Overpayment	2,766,145	2,766,145	2,766,145	2,766,145	2,766,145	2,766,145	2,766,145	2,766,145	2,766,145	2,766,145
						2,036	2,037	2,038	2,039	2,040
Summary	Payment Already made	Projected Payment to be made over project life	Total Payments (if Contract not revised)		Tariff US Cents	7.80	7.80	7.80	7.80	7.80
Payments made on applicable tariff	105,352,052	337,490,257	442,842,309		Units Produced	153,300,000	153,300,000	153,300,000	153,300,000	153,300,000
Projected Payments on Justified tariff	61,320,000	229,950,000	291,270,000							
Total Over Payments over Project Life	44,032,052	107,540,257	151,572,309		Billing by the C	11,964,145	11,964,145	11,964,145	11,964,145	11,964,145
					Comparative T	6.00	6.00	6.00	6.00	6.00
					Justified Billing	9,198,000	9,198,000	9,198,000	9,198,000	9,198,000
					Overpayment	2,766,145	2,766,145	2,766,145	2,766,145	2,766,145

Notes:

- 1 Tariff are also linked to US & Pakistan CPI and KIBOR so actual payment will be higher.
- 2 No Corporate or Dividend Tax applicable on Power Projects.
- 3 These are must run plants and will have to be paid in full under all circumstances.

Name of Project	Crest Solar Power Project	
Capacity	100	
Availability	17.50%	
Year of Commissioning	2016	
Exchange Rate	105	
Concession Period	25 years	

Amount in US Dollars

0

Years	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Tariff US Cents (Applicable)	17.18	17.18	17.18	17.18	17.18	17.18	17.18	17.18	17.18	17.18
Units Produced per annum	153,300,000	153,300,000	153,300,000	153,300,000	153,300,000	153,300,000	153,300,000	153,300,000	153,300,000	153,300,000
Billing by the Company	26,338,013	26,338,013	26,338,013	26,338,013	26,338,013	26,338,013	26,338,013	26,338,013	26,338,013	26,338,013
Comparative Tariff Indian Average Usc (Actual)	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00
Justified Billing	15,330,000	15,330,000	15,330,000	15,330,000	15,330,000	15,330,000	15,330,000	15,330,000	15,330,000	15,330,000
Overpayment	11,008,013	11,008,013	11,008,013	11,008,013	11,008,013	11,008,013	11,008,013	11,008,013	11,008,013	11,008,013
	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Tariff US Cents (Applicable)	7.80	7.80	7.80	7.80	7.80	7.80	7.80	7.80	7.80	7.80
Units Produced per annum	153,300,000	153,300,000	153,300,000	153,300,000	153,300,000	153,300,000	153,300,000	153,300,000	153,300,000	153,300,000
Billing by the Company	11,964,145	11,964,145	11,964,145	11,964,145	11,964,145	11,964,145	11,964,145	11,964,145	11,964,145	11,964,145
Comparative Tariff Indian Average Usc (Actual)	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
Justified Billing	9,198,000	9,198,000	9,198,000	9,198,000	9,198,000	9,198,000	9,198,000	9,198,000	9,198,000	9,198,000
Overpayment	2,766,145	2,766,145	2,766,145	2,766,145	2,766,145	2,766,145	2,766,145	2,766,145	2,766,145	2,766,145
						2,036	2,037	2,038	2,039	2,040
Summary	Payment Already made	Projected Payment to be made over project life	Total Payments (if Contract not revised)			Tariff US Cents	7.80	7.80	7.80	7.80
Payments made on applicable tariff	105,352,052	337,490,257	442,842,309		Units Produced	153,300,000	153,300,000	153,300,000	153,300,000	153,300,000
Projected Payments on Justified tariff	61,320,000	229,950,000	291,270,000							
Total Over Payments over Project Life	44,032,052	107,540,257	151,572,309		Billing by the C	11,964,145	11,964,145	11,964,145	11,964,145	11,964,145
					Comparative T	6.00	6.00	6.00	6.00	6.00
					Justified Billing	9,198,000	9,198,000	9,198,000	9,198,000	9,198,000
					Overpayment	2,766,145	2,766,145	2,766,145	2,766,145	2,766,145

Notes:

- 1 Tariff are also linked to US & Pakistan CPI and KIBOR so actual payment will be higher.
- 2 No Corporate or Dividend Tax applicable on Power Projects.
- 3 These are must run plants and will have to be paid in full under all circumstances.

Name of Project	Best Green Solar Power	
Capacity	100	
Availability	17.50%	
	187,136,223	2016
Exchange Rate	105	
Concession Period	25 years	

Amount in US Dollars

0

Years	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Tariff US Cents (Applicable)	17.18	17.18	17.18	17.18	17.18	17.18	17.18	17.18	17.18	17.18
Units Produced per annum	153,300,000	153,300,000	153,300,000	153,300,000	153,300,000	153,300,000	153,300,000	153,300,000	153,300,000	153,300,000
Billing by the Company	26,338,013	26,338,013	26,338,013	26,338,013	26,338,013	26,338,013	26,338,013	26,338,013	26,338,013	26,338,013
Comparative Tariff Indian Average Usc (Actual)	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00
Justified Billing	15,330,000	15,330,000	15,330,000	15,330,000	15,330,000	15,330,000	15,330,000	15,330,000	15,330,000	15,330,000
Overpayment	11,008,013	11,008,013	11,008,013	11,008,013	11,008,013	11,008,013	11,008,013	11,008,013	11,008,013	11,008,013
	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Tariff US Cents (Applicable)	7.80	7.80	7.80	7.80	7.80	7.80	7.80	7.80	7.80	7.80
Units Produced per annum	153,300,000	153,300,000	153,300,000	153,300,000	153,300,000	153,300,000	153,300,000	153,300,000	153,300,000	153,300,000
Billing by the Company	11,964,145	11,964,145	11,964,145	11,964,145	11,964,145	11,964,145	11,964,145	11,964,145	11,964,145	11,964,145
Comparative Tariff Indian Average Usc (Actual)	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
Justified Billing	9,198,000	9,198,000	9,198,000	9,198,000	9,198,000	9,198,000	9,198,000	9,198,000	9,198,000	9,198,000
Overpayment	2,766,145	2,766,145	2,766,145	2,766,145	2,766,145	2,766,145	2,766,145	2,766,145	2,766,145	2,766,145
						2,036	2,037	2,038	2,039	2,040
Summary	Payment Already made	Projected Payment to be made over project life	Total Payments (if Contract not revised)		Tariff US Cents	7.80	7.80	7.80	7.80	7.80
Payments made on applicable tariff	105,352,052	337,490,257	442,842,309		Units Produced	153,300,000	153,300,000	153,300,000	153,300,000	153,300,000
Projected Payments on Justified tariff	61,320,000	229,950,000	291,270,000							
Total Over Payments over Project Life	44,032,052	107,540,257	151,572,309		Billing by the C	11,964,145	11,964,145	11,964,145	11,964,145	11,964,145
					Comparative T	6.00	6.00	6.00	6.00	6.00
					Justified Billing	9,198,000	9,198,000	9,198,000	9,198,000	9,198,000
					Overpayment	2,766,145	2,766,145	2,766,145	2,766,145	2,766,145

Notes:

- 1 Tariff are also linked to US & Pakistan CPI and KIBOR so actual payment will be higher.
- 2 No Corporate or Dividend Tax applicable on Power Projects.
- 3 These are must run plants and will have to be paid in full under all circumstances.

Annex-I

Quaid-e-Azam Solar Power (Private) Limited
Reference Tariff Table (South Region)

Year	O&M	Insurance	Return on Equity	Debt Servicing	Total Tariff	
	Rs./kWh	Rs./kWh	Rs./kWh	Rs./kWh	Rs. per kWh	¢ per kWh
1	2.4736	0.9307	4.7903	9.8451	18.0397	17.1807
2	2.4736	0.9307	4.7903	9.8451	18.0397	17.1807
3	2.4736	0.9307	4.7903	9.8451	18.0397	17.1807
4	2.4736	0.9307	4.7903	9.8451	18.0397	17.1807
5	2.4736	0.9307	4.7903	9.8451	18.0397	17.1807
6	2.4736	0.9307	4.7903	9.8451	18.0397	17.1807
7	2.4736	0.9307	4.7903	9.8451	18.0397	17.1807
8	2.4736	0.9307	4.7903	9.8451	18.0397	17.1807
9	2.4736	0.9307	4.7903	9.8451	18.0397	17.1807
10	2.4736	0.9307	4.7903	9.8451	18.0397	17.1807
11	2.4736	0.9307	4.7903	-	8.1947	7.8044
12	2.4736	0.9307	4.7903	-	8.1947	7.8044
13	2.4736	0.9307	4.7903	-	8.1947	7.8044
14	2.4736	0.9307	4.7903	-	8.1947	7.8044
15	2.4736	0.9307	4.7903	-	8.1947	7.8044
16	2.4736	0.9307	4.7903	-	8.1947	7.8044
17	2.4736	0.9307	4.7903	-	8.1947	7.8044
18	2.4736	0.9307	4.7903	-	8.1947	7.8044
19	2.4736	0.9307	4.7903	-	8.1947	7.8044
20	2.4736	0.9307	4.7903	-	8.1947	7.8044
21	2.4736	0.9307	4.7903	-	8.1947	7.8044
22	2.4736	0.9307	4.7903	-	8.1947	7.8044
23	2.4736	0.9307	4.7903	-	8.1947	7.8044
24	2.4736	0.9307	4.7903	-	8.1947	7.8044
25	2.4736	0.9307	4.7903	-	8.1947	7.8044
Levelized	2.4736	0.9307	4.7903	6.6645	14.8591	14.1516

Installed Capacity (MWp)
Minimum Annual Energy (GWh)
CPI (General) August 2014
US CPI (All Urban Consumers) August 2014
Exchange Rate (Rs./US\$)

100.000
153.300
198.700
237.852
105.000



ANNEX-A

Solar IPPs	Upfront Tariff 2013			
Tariff Component	QASPL	Appolo	Best	Crest
(Rs./kWh)				
O&M	3.4444	3.4445	3.4444	3.4443
Return on Equity	6.5018	5.2103	4.9256	6.2360
Debt Servicing	14.1536	13.9921	15.5088	14.3694
Sinosure		0.4976	0.5370	0.4988
Insurance	-	0.4452	0.1042	0.0992
Total	24.0998	23.5897	24.5199	24.6477

Indexation Values

CPI (General)	237.61	237.61	237.61	237.61
US CPI	252.78	252.78	252.78	252.776
Exchange Rate	140.70	140.7	140.7	140.70
Kibor 3-Month		10.99%		10.99%
Libor 3-Month	10.99%	2.60%	2.60%	2.60%
Interest rate (RMB)		2.65%	2.65%	2.65%

Source: CPPA